











FLORA  
OF THE  
FLORIDA KEYS

BEING DESCRIPTIONS OF  
THE SEED-PLANTS GROWING NATURALLY ON THE  
ISLANDS OF THE FLORIDA REEF  
FROM VIRGINIA KEY TO DRY TORTUGAS

BY

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## PREFACE.

This Flora contains descriptions of the seed-plants known to the author to grow naturally on the islands of the Florida Reef from Virginia Key to Dry Tortugas. These islands are known collectively as the Florida Keys, and they lie in the form of a parabola with a length of about two hundred and twenty-five miles. There are approximately two hundred named islands. They are divided naturally into four groups which are described below.

At the northeastern end of the chain are two sand islands, namely Virginia Key and Key Biscayne. These may be designated the Upper Sand keys ("U. S. keys").<sup>1</sup> These two bodies of sand are really mere detached portions of the slender coastal peninsula of sand-dunes extending along the eastern side of peninsular Florida.

Seven miles south of Key Biscayne a second group of islands appears. These are composed of coral-rock, and extend from Soldier Key, for a distance of about one hundred and twenty miles, to the West Summerland or Spanish Harbor Keys. The islands are for the most part greatly elongated and with the long axis in a curve following the general trend of the adjacent mainland. This group is known as the Upper keys ("U. keys").

The third natural group of islands begins with No Name Key and Little Pine Key and extends in a westerly direction for a distance of about thirty miles, to Key West. The islands of this group are composed of Miami Limestone, and although irregular in shape, the long axis is nearly north and south, thus also differing from those of the previous group. They are known collectively as the Lower keys ("L. keys").

The fourth group of islands lies to the westward of Key West and reaches well into the Gulf of Mexico. They are composed of sand, and may be designated the Lower Sand keys ("L. S. keys").

The Upper Sand keys maintain, for the most part, a sand-dune and hammock flora which is related to that of the coastal peninsula to the north. The Upper keys are naturally clothed with a dense hammock growth of tropical hardwood shrubs and trees, and palms; they closely resemble many of the Bahama islands. The Lower keys are more varied in their vegetation, supporting large areas of pineland and palmland, as well as extensive hammocks. Their vegetation indicates close relationship to Cuba.

<sup>1</sup> This abbreviation and the abbreviations of the subsequently mentioned groups are used on the following pages to indicate the geographical distribution of the species of plants growing in the region under consideration.

and the pinelands are almost identical with those of the Miami Limestone Region or Everglade Keys. The Lower Sand keys are little more than sand-bars, and they support, like the ocean side of all the Florida Keys, only, or mainly, the characteristic strand-flora of most of the West Indies.

The whole chain is surrounded by tropical waters. The western extension lies in the Gulf of Mexico. The inner side of the reef is bathed by the waters of the Gulf gradually narrowed into the Bay of Florida, Blackwater Sound, Barnes' Sound, Card's Sound, and Bay Biscayne. The outer side of the reef is swept by the warm waters of the Gulf Stream. Thus we find here a tropical flora made up almost wholly of West Indian elements, and closely related to the floras of Bermuda, the Bahamas, and Cuba. This relationship is indicated on the following pages by "*Ber.*" (Bermuda), "*Bah.*" (Bahamas), and "*Cuba.*" and also by "*Ant.*" (Antilles) when a species occurs in other parts of the West Indies. The relationship of the flora of the Florida Keys to that of the Everglade Keys or the Miami Limestone Region is indicated by "*E. K.*"

The specimens on which this flora is based are preserved in the herbarium of the New York Botanical Garden and the exploration which made this study possible was carried out under the auspices of that institution. The botanical exploration of the West Indies, carried on at the same time by the New York Botanical Garden, has rendered possible the detailed indication of the geographical distribution of the species.

J. K. SMALL.

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# KEY TO THE ORDERS.

Ovules, and seeds, borne on the face of a bract or a scale: stigmas wanting.

Class 1. GYMNOSPERMAE.

Ovules, and seeds, in a closed cavity (ovary): stigmas present.

Class 2. ANGIOSPERMAE.

## 1. Gymnospermae.

Plants growing by a single terminal bud, with pinnate leaves circinate in veneration: embryo prolonged into a spiral. Order CYCADALES.

Plants growing by lateral as well as by terminal buds, with scale-like, flat or needle-like leaves not circinate: embryo not prolonged into a spiral. Order PINALES.

## 2. Angiospermae.

Cotyledon 1: stem endogenous.

Subclass 1. MONOCOTYLEDONES.

Cotyledons normally 2: stem exogenous (with rare exceptions).

Subclass 2. DICOTYLEDONES.

### 1. MONOCOTYLEDONES.

Perianth rudimentary or degenerate, the members often bristles or mere scales, not corolla-like, or wanting.

Flowers not in the axils of dry or chaffy bracts (scales or glumes).

Perianth of bristles or chaffy scales.

Order PANDANALES.

Perianth fleshy or herbaceous, or wanting.

Fruit baccate: endosperm present.

Order ARALES.

Fruit drupaceous: endosperm wanting.

Order NAIADALES.

Flowers in the axils of dry or chaffy, usually imbricated, bracts (scales or glumes).

Order POALES.

Perianth of 2 distinct series, the inner series usually corolloid.

Gynoecium of distinct carpels.

Order ALISMALES.

Gynoecium of united carpels.

Endosperm mealy.

Order XYRIDALES.

Endosperm fleshy, horny or cartilaginous.

A. Ovary, and fruit, superior.

a. Herbs, or rarely shrubs or trees, with simple leaves: ovules 2-many in each cavity of the ovary, or solitary only in the case of a few herbs

Inflorescence not a fleshy spadix.

Order LILIALES.

Inflorescence a fleshy spadix subtended by a spathe.

Order ARALES.

b. Trees or shrubs, with pinnately or palmately compound or lobed leaf-blades: ovules solitary in each cavity of the ovary.

Order ARECALES.

B. Ovary, and fruit, wholly inferior or half-inferior.

Endosperm present and usually copious.

Flowers regular: androecium not reduced.

Order AMARYLLIDALES.

Flowers very irregular: androecium much reduced and modified.

Order SCITAMINALES.

Endosperm wanting.

Flowers regular, monoecious or dioecious: aquatic plants.

Order HYDROCHARITALES.

Flowers irregular, perfect: terrestrial or epiphytic plants.

Order ORCHIDALES.

### 2. DICOTYLEDONES.

A. Corolla wanting, except in the pistillate flowers of *Juglans* (Juglandaceae).

Calyx wanting, at least in the staminate flowers, except sometimes in *Casuarina* (Casuarinaceae).

Herbs.

Flowers mainly perfect.

Order PIPERALES.

Flowers monoecious or dioecious.

Order EUPHORBIALES.

Trees or shrubs: flowers monoecious or dioecious, or polygamous.

Leaves represented by appressed whorled scales: stems or branches loosely jointed.

Order CASUARINALES.

Leaves not appressed scales: stems or branches not loosely jointed.

Fruit 1-seeded: seeds without tufts of hairs.

Pistillate flowers without a calyx: ovule erect and orthotropous.

Order MYRICALES.

Pistillate flowers with a calyx: ovule pendulous and anatropous.

Leaf-blades simple. Oleaceae in Order OLEALES.

Leaf-blades compound: fruit a samara.

Oleaceae in Order OLEALES.

Fruit many-seeded: seeds each with a tuft of hairs. Order SALICALES.

Calyx present at least in the staminate or in the perfect flowers.

Leaves represented by appressed whorled scales: branches loosely jointed.

Order CASUARINALES.

Leaves not appressed scales: branches not loosely jointed.

Flowers, at least the staminate, in aments, or ament-like spikes.

Pistillate flowers separate at maturity: fruit a nut or an achene.

Order FAGALES.

Pistillate flowers forming aggregate fruits: fruit drupe-like.

Artocarpaceae in Order URTICALES.

Flowers, at least the staminate, not in aments.

a. Ovary superior.

Gynoecium of 1 or several and distinct carpels: stigma and style solitary.

Carpel solitary.

Style lateral and oblique.

Petiveriaceae in Order CHENOPODIALES.

Style axile, erect.

Ovary neither enclosed nor seated in a hypanthium or a calyx-tube. Urticaceae in Order URTICALES.

Ovary enclosed in or seated in a hypanthium or a calyx-tube.

Stamens borne under the gynoecium.

Allioniaceae in Order CHENOPODIALES.

Stamens borne on the hypanthium or adnate to the calyx-tube.

Order THYMELEALES.

Carpels several.

Stamens inserted below the ovary.

Families in Order RANALES.

Stamens inserted on the edge of a cup-shaped hypanthium.

Rosaceae in Order ROSALES.

Gynoecium of 2 or several united carpels: stigmas or styles 2 or several.

\* Ovary, by abortion, 1-celled and 1-ovuled.

Leaves with sheathing stipules (ocreae).

Order POLYGONALES.

Leaves estipulate, or if stipules are present they are not sheathing.

Trees or shrubs.

Anthers opening by slits: ovary not seated in a hypanthium. Ulmaceae in Order URTICALES.

Anthers opening by hinged valves: ovary seated in an accrescent hypanthium.

Lauraceae in Order THYMELEALES.

Herbs or vines.

Leaves with stipules.

Families in Order CHENOPODIALES.

Leaves without stipules.

Order CHENOPODIALES.

Stigmas entire.

Stigmas 2-cleft.

Euphorbiaceae in Order EUPHORBIALES.

\*\* Ovary several-celled, or with several placentae, several-ovuled.

Stamens hypogynous, inserted under the gynoecium in the perfect flowers, not on a disk in the pistillate flowers.

Herbs.

Flowers perfect.

Ovary several-celled.

Families in Order CHENOPODIALES.

Ovary 1-2-celled.

Stamens not tetradynamous, 4-8: ovary

1-celled. Order CHENOPODIALES.

Stamens tetradynamous: ovary 2-celled.

Brassicaceae in Order PAPAVERALES.

Flowers monoecious or dioecious.

Euphorbiaceae in Order EUPHORBIALES.

Trees or shrubs.

Gynoecium 5-carpellary, the carpels nearly distinct.

Buettneriaceae in Order MALVALES.



- Gynoecium 2-4-carpellary, the carpels united.  
 Ovary 4-celled: fleshy maritime shrubs.  
     Batidaceae in Order CHENOPODIALES.  
 Ovary 2-celled: plants not fleshy.  
     Oleaceae in Order OLEALES.  
 Stamens perigynous or epigynous, inserted on the margin  
 of a hypanthium or a disk.  
 \* Fruit a samara. Families in Order SAPINDALES.  
 Fruit not a samara.  
     Fruit drupe-like or berry-like: shrubs or trees.  
     Order RHAMNALES.  
     Fruit a capsule: herbs. Order ARISTOLOCHIALES.  
 b. Ovary inferior.  
     Flowers not in involucrate heads.  
     Fruit 3-winged, splitting into 3 nutlets.  
         *Gouania* in Order RHAMNALES.  
     Fruit neither 3-winged nor splitting into carpels.  
     Fruit a berry or a drupe, or nut-like.  
     Calyx deciduous as a lid: stamens numerous.  
         *Calyptanthus* in Order MYRTALES.  
     Calyx of valvate or imbricated sepals: stamens few.  
     Stamens as many as the perianth-members and  
     alternate with them, or fewer.  
         Tetragoniaceae in Order CHENOPODIALES.  
     Stamens as many as the perianth-members and op-  
     posite them, or twice as many.  
     Styles present.  
     Ovules mostly on basal placentae, sometimes  
     pendulous: cotyledons not convolute: tree-  
     or root-parasites. Order SANTALALES.  
     Ovules not on basal placentae: cotyledons  
     convolute: not parasitic plants.  
         Families in Order MYRTALES.  
     Styles wanting: stigmas sessile.  
         Gunneraceae in Order MYRTALES.  
     Fruit a capsule. Order MYRTALES.  
     Flowers, at least the staminate, in involucrate heads.  
         Ambrosiaceae in Order CARDUALES.  
 B. Corolla present.  
 \*Petals distinct, at least at the base.  
     Carpels solitary, or several and distinct, or united only at the base.  
     Stamens at the base of the receptacle, *i. e.*, hypogynous.  
     Plants with relatively firm stems and leaves, not succulent.  
         Order RANALES.  
     Plants with succulent stems and leaves. Sedaceae in Order ROSALES.  
     Stamens on the margin of a hypanthium.  
     Plants without secreting glands in the bark. Order ROSALES.  
     Plants with secreting glands in the bark.  
         Surianaceae in Order GERANIALES.  
 Carpels several and united.  
 †Ovary superior.  
     ‡Stamens inserted at the base of the ovary or receptacle.  
         §Stamens numerous.  
         Sepals imbricated.  
         Calyx deciduous. Order PAPAVERALES.  
         Calyx persistent.  
         Styles or stigmas distinct or united, but not discoid.  
         Leaves glandular or pellucid-punctate.  
             Rutaceae in Order GERANIALES.  
         Leaves not glandular.  
             Capparidaceae in Order PAPAVERALES.  
         Styles or stigmas united into a disk.  
             Nymphaeaceae in Order RANALES.  
     Sepals valvate.  
         Stamens with distinct filaments.  
         Ovary 1-celled: placentae parietal.  
             Capparidaceae in Order PAPAVERALES.  
         Ovary 2-several-celled: placentae axile or central.  
             Families in Order MALVALES.  
         Stamens with united filaments. Order MALVALES.  
     §§Stamens few, not over twice as many as the petals.  
         Stamens as many as the petals and opposite them.  
         Flowers monoecious.  
             Euphorbiaceae in Order EUPHORBIALES.

## KEY TO THE ORDERS

- Flowers perfect.
  - Ovules, or seeds, several or many: embryo coiled.
    - Portulacaceae in Order CHENOPODIALES.
  - Ovules, or seeds, solitary: embryo straight.
    - Plumbaginaceae in Order PRIMULEALES.
- Stamens as many as the petals and alternate with them, or more, sometimes twice as many.
  - Stamens 6: petals 4: sepals 2 or 4.
    - Families in Order PAPAVERALES.
- Stamens, petals and sepals of the same number, or stamens more, usually twice as many as the sepals or petals.
  - Ovary 1-celled.
    - Ovules, or seeds, on basal or central placentae.
      - Families in Order CHENOPODIALES.
    - Ovules, or seeds, on parietal placentae.
      - Stigmas 2-cleft or brush-like
        - Anther with an inconspicuous connective.
          - Stigmas not brush-like.
            - Droseraceae in Order SARRACENIALES.
          - Stigmas brush-like.
            - Turneraceae in Order HYPERICALES.
        - Anther with the conspicuous connective produced beyond the sacs.
          - Papayaceae in Order PASSIFLORALES.
      - Stigmas entire.
        - Stamens with united filaments and no staminodia.
          - Families in Order MALVALES.
        - Stamens with distinct filaments.
          - Families in Order HYPERICALES.
- Ovary several-celled.
  - Stamens adnate to the gynoeceum.
    - Asclepiadaceae in Order ASCLEPIADALES.
  - Stamens not adnate to the gynoeceum.
    - Stamens with wholly or partly united filaments.
      - Anthers opening lengthwise.
        - Families in Order GERANIALES.
      - Anthers opening by pores.
        - Polygalaceae in Order POLYGALALES.
    - Stamens with distinct filaments.
      - Anthers opening by pores.
        - Families in Order ERICALES.
      - Anthers opening by slits.
        - Stigmas or styles distinct and cleft, or foliaceous, or united by pairs.
          - Order EUPHORBIALES.
        - Stigmas or styles all distinct or all united, neither cleft nor foliaceous.
          - Stamens 2. Oleaceae in Order OLEALES.
        - Stamens more than 2.
          - Leaves with compound blades.
            - Families in Order GERANIALES.
          - Leaves with simple blades.
            - Ovule solitary in each carpel.
              - Families in Order GERANIALES.
            - Ovules 2 or more in each carpel.
              - Placentae parietal.
                - Cistaceae
                  - in Order HYPERICALES.
                - Placentae axile or central.
                  - Tiliaceae
                    - in Order MALVALES.
    - ††Stamens inserted on the margin of a disk or hypanthium (perigynous or hypogynous).
      - Stamens as many as the petals and opposite them.
        - Ovules and seeds numerous.
          - Moringaceae in Order PAPAVERALES.
        - Ovules and seeds solitary or 2.
          - Order RHAMNALES.
      - Stamens as many as the petals and alternate with them, or more or many.
        - Styles distinct.
          - Order SAPINDALES.
        - Styles united.
          - Hypanthium flat or obsolete: disk fleshy.
            - Plants with secreting glands in the bark.
              - Families in Order GERANIALES.
            - Hypanthium cup-shaped or campanulate: disk obsolete or inconspicuous.
              - Order MYRTALES.

## ††Ovary inferior.

Stamens numerous.

Styles and stigmas united into a disk: water-plants with endogenous stems. Nymphaeaceae in Order RANALES.

Styles distinct, or united, but not forming a disk with radiating stigmas: land-plants with exogenous stems. Families in Order ROSALES.

Styles distinct.

Styles united.

Shrubs or trees not succulents; sometimes woody vines.

Families in Order MYRTALES.

Herbs, or shrub-like or tree-like succulents.

Order OPUNTIALES.

Stamens not more than twice as many as the petals.

Styles wanting: stigmas sessile.

Gunneraceae in Order MYRTALES.

Styles present.

Styles distinct.

Ovules several in each cavity of the ovary: fruit a capsule or a fleshy many-seeded berry.

Fruit, if dehiscent, valvate. Families in Order ROSALES.

Fruit circumscissile.

Portulacaceae in Order CHENOPODIALES.

Ovules solitary in each cavity of the ovary: fruit a drupe or 2-5 more or less united achenes. Order AMMIALES.

Styles united, or single.

Plants without tendrils.

Anther-sacs opening by pores.

Vacciniaceae in Order ERICALES.

Anther-sacs opening by slits.

Ovules solitary in each cavity of the ovary.

Order AMMIALES.

Ovules several in each cavity.

Ovary with parietal placentae.

Loasaceae in Order OPUNTIALES.

Ovary with central or basal placentae.

Families in Order MYRTALES.

Plants with tendrils.

Herbs: fruit a pepo: leaf-blades palmately veined.

Cucurbitaceae in Order CAMPANULALES.

Shrubby vines: fruit drupaceous, separating into nutlets: leaf-blades pinnately veined.

Frangulaceae in Order RHAMNALES.

## \*\*Petals more or less united.

Ovary superior.

Stamens free from the corolla.

Gynoecium of a single carpel.

Families in Order ROSALES.

Gynoecium of several united carpels.

Filaments united.

Calyx and corolla very irregular.

Order POLYGALALES.

Calyx and corolla regular.

Families in Order ERICALES.

Filaments distinct.

Styles wanting or very short: stigma sessile.

Aquifoliaceae in Order SAPINDALES.

Styles elongated.

Ovary several-celled.

Families in Order ERICALES.

Ovary 1-celled.

Armeriaceae in Order PRIMULALES.

Stamens partially adnate to the corolla.

Stamens as many as the lobes of the corolla and opposite them, or twice as many or more.

Ovary 1-celled.

Order PRIMULALES.

Ovary several-celled.

Upper portion of the ovaries distinct.

Sedaceae in Order ROSALES.

Upper portion of the ovaries united.

Order EBENALES.

Stamens as many as the lobes of the corolla and alternate with them, or fewer.

Corolla not scarious, veiny: fruit various, but not a pyxis.

Gynoecium of 3-6 carpels.

Shrubs or trees: ovules and seeds few.

Aquifoliaceae in Order SAPINDALES.

Herbs or creeping or tufted shrubby plants: ovules and seeds numerous.

Families in Order POLEMONIALES.

Gynoecium of 2 carpels.

Carpels distinct, except sometimes at the apex.

Order ASCLEPIADALES.

Carpels united.

## KEY TO THE ORDERS

- Ovary 1-celled, with central placentae.
  - Order GENTIANALES.
- Ovary 2-celled, or falsely 4-celled, or if 1-celled with parietal placentae.
  - Stamens 2 and opposite each other, or 3.
    - Order OLEALES.
  - Stamens usually 4 or 5, if 2 by reduction not opposite each other.
    - Leaves with stipules or stipular lines at their bases.
      - Spigellaceae in Order GENTIANALES.
    - Leaves with no traces of stipules.
      - Order POLEMONIALES.
- Ovary inferior.
  - Corolla scarious, veinless: fruit a pyxis.
    - Order PLANTAGINALES.
  - Stamens with the filaments free from the corolla.
    - Stamens 10: anther-sacs opening by terminal pores or chinks.
      - Vacciniaceae in Order ERICALES.
    - Stamens 5 or fewer: anther-sacs opening by longitudinal slits.
      - Order CAMPANULALES.
  - Stamens adnate to the corolla.
    - Ovary with 2-many fertile cavities and 2-many ovules: calyx unmodified, at least not a pappus.
      - Plants tendril-bearing.
        - Cucurbitaceae in Order CAMPANULALES.
      - Plants not tendril-bearing.
        - Ovules mostly on basal placentae: plants parasitic.
          - Order SANTALALES.
        - Ovules variously borne, but not on a basal placenta: plants not parasitic.
          - Order RUBIALES.
      - Ovary with one fertile cavity.
        - Ovules numerous on a basal placenta.
          - Primulaceae in Order PRIMULALES.
        - Ovule solitary, the placentae not basal.
          - Order CARDUALES.



# FLORA OF THE FLORIDA KEYS

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## Subkingdom **SPERMATOPHYTA**. SEED PLANTS.

Plants producing flowers and seeds. A seed contains an embryo consisting of a short stem (radicle or caulicle), one, two, or several rudimentary leaves (cotyledons) and a terminal bud (plumule).

Ovules, and seeds, borne on the face of a scale: stigma none. Class I. **GYMNOSPERMAE**.  
Ovules, and seeds, borne in a closed cavity: stigma present. Class II. **ANGIOSPERMAE**.

## CLASS I. **GYMNOSPERMAE**. CONE PLANTS.

Carpel or pistil represented by a scale upon the face of which are borne the ovules and upon which the naked seeds mature.

Plants growing by a terminal bud only: leaves circinate; blades pinnate.

Order 1. **CYCADALES**.

Plants growing by a terminal and lateral buds: leaves not circinate; blades not pinnate.

Order 2. **PINALES**.

### Order **CYCADALES**.

Palm-like or fern-like plants. Leaves in a crown: blades pinnate. Flowers in cones of approximate scales or on slightly modified leaves. Staminate cones with scales bearing several pollen-sacs. Ovulate cones with two or more ovules on each scale. Seed drupe-like or nut-like.

#### 1 FAMILY 1. **CYCADACEAE**. SAGO-PALM FAMILY.

Dioecious plants with subterranean or erect stems. Leaves spreading: leaflets with 1 or several ribs or veins. Staminate cones deciduous. Ovulate leaves or cones persistent. Seeds exposed on the margins of the ovulate leaf or enclosed in a cone.

1. **ZAMIA** L. Plants with subterranean or erect stems. Leaflets separated, manifestly jointed to the rachis, several-many-veined. Scales of the ovulate aments flat, depressed or swollen at the apex. Ovules and seeds sessile, included.

1. **Z. floridana** DC. Leaves 4-9.5 dm. long: leaflets 28-40, the blades linear. 9-14 cm. long, 3-7 mm. wide: mature pistillate cones oblong, densely pubescent with dark-brown persistent hairs; the seed-bearing scales thick.—Pinelands, L. keys.—[E. K.]—COONTIE. COMFORT-ROOT. COMPTIE. FLORIDA-ARROWROOT.

### Order **PINALES**.

Shrubs or trees. Leaves alternate, sometimes clustered or in sheathed bundles: blades scale-like, narrow, or needle-like, or rarely dilated. Flowers mainly monoecious, in cones of spirally imbricate scales, or in *Taxaceae*

Flora of Florida Keys 1.

the ovulate flowers often solitary. Seeds borne in cones of dry or fleshy scales, or wholly or partially naked.

## FAMILY 1. PINACEAE. PINE FAMILY.

Mostly evergreen resiniferous shrubs or trees, typically conic, with flaky or brittle bark. Leaves narrow and solitary, or usually several together, each group with a sheath at the base. Ovulate aments with bracted scales. Mature ovulate cone of dry scales. Seed often samara-like.

1. **PINUS** [Tourn.] L. Leaves needle-like, in 2's or 3's, sheathed at the base, each with 2 fibro-vascular bundles. Cones spreading: scales at length woody and spreading or reflexed, each with a dorsal, usually spine-armed appendage. Seeds samara-like.—PINE.

1. **P. caribaea** Morelet. Tree with coarse, flaky bark, branched near the top: leaves in 2's or 3's, 18-30 cm. long, or sometimes shorter, bright-green: cones broadly conic when closed, ovoid or oblong-ovoid when open, 8-14 cm. long or rarely shorter, the scales with rather weak spines: seed-wing 2.5-3 cm. long or rarely smaller.—Common on some of the larger L. keys; very rare on the U. keys. —[E. K.]—(*Bah., Cuba.*)—CARIBBEAN-PINE.

## CLASS II. ANGIOSPERMAE.

Carpel, or pistil, formed by the union of the margins of one, or of several, rudimentary leaves; within the cavity thus formed the ovules are borne and the seeds are matured.

Cotyledon 1: leaf-blades with the primary or lateral veins parallel: stem endogenous.  
1. MONOCOTYLEDONES.  
Cotyledons typically 2: leaf-blades with the veins netted:  
stem exogenous. 2. DICOTYLEDONES.

## SUBCLASS 1. MONOCOTYLEDONES.

Stem consisting of a ground mass of soft tissue in which bundles of wood-cells are irregularly placed. Early leaves alternate.

### Order PANDANALES.

Perennial, aquatic or marsh herbs, with elongate rootstocks. Leaves with narrow blades. Flowers in narrow racemes or globular spikes. Perianth of scales or bristles. Androecium of 2-7 stamens. Gynoecium 1- or 2-carpellary. Fruit nut-like.

## FAMILY 1. TYPHACEAE. CAT-TAIL FAMILY.

Racemes solitary and terminal, subtended by deciduous bracts, the staminate portion uppermost. Perianth of bristles. Pistil stipitate: stigma spatulate, oblong or rhomboidal.

1. **TYPHA** L. Erect herbs with sheathed stems. Leaves with erect linear blades. Racemes cylindric, the pistillate portion brown.

- 3 1. **T. angustifolia** L. Plants 1.5–3 m. tall: leaf-blades mostly 15–20 mm. wide: pistillate portion of the raceme 10–20 mm. thick.—Lime-sinks, U. keys, L. keys.—[E. K.]—(*Ber.*, *Bah.*, *Cuba*, *Ant.*)—CAT-TAIL.

### Order NAIADALES.

Perennial, aquatic or marsh herbs. Leaves various, sometimes mere phyllodia. Flowers usually symmetrical. Perianth wanting or imperfect. Androecium usually of 1–4 stamens. Gynoecium simple or several-carpellary.

Gynoecium of distinct carpels: stigmas disk-like or cup-like.

Gynoecium of united carpels: stigmas slender.

Fam. 1. ZANNICHELLIACEAE.

Fam. 2. CYMODOCEACEAE.

#### FAMILY 1. ZANNICHELLIACEAE. PONDWEED FAMILY.

Aquatic caulescent herbs. Leaves alternate, filiform or with broad blades, entire. Flowers perfect or monoecious, in spikes or clusters, from a spathe. Androecium of 1, or mostly 2–4 distinct stamens. Gynoecium of several distinct carpels. Fruit a cluster or spike of drupelets.

Stigma terminating a long style: anther 1.

Stigma sessile, anthers 2.

1. ZANNICHELLIA.

2. RUPPIA.

1. **ZANNICHELLIA** L. Delicate herbs of fresh or brackish water. Leaves with narrow blades and inconspicuous bases. Flowers monoecious: staminate with 1 stamen; pistillate with 2–6 carpels together. Drupelets clustered, curved, crested.

4 1. **Z. palustris** L. Leaves 2–7 cm. long, acute: drupelets 2–4, or sometimes 6, together, the body 2–4 mm. long, short-stipitate.—Pools and creeks.—[E. K.]—HORNED-PONDWEED.

2. **RUPPIA** L. Delicate herbs of salt or brackish water. Leaves with slender blades and conspicuous bases. Flowers perfect. Stamens 2. Carpels 4. Drupelets clustered, oblique, crestless.

5 1. **R. maritima** L. Leaves 2.5–4 cm. long, capillary at the apex: drupelets few, the body ovoid, gibbous at the base, long-stipitate.—Pools and creeks, L. keys.—[E. K.]—(*Ber.*, *Bah.*, *Cuba*, *Ant.*)—DITCH-GRASS.

#### 5 FAMILY 2. CYMODOCEACEAE. MANATEE-GRASS FAMILY.

Submerged herbs with jointed rootstocks. Leaves clustered at the nodes or on short branches, each with a sheath and a narrow blade. Flowers monoecious or dioecious. Perianth wanting. Androecium of a single anther terminating a long filament. Gynoecium of 2 distinct inequilateral carpels, each terminating in a style and 2 elongate stigmas or of one carpel terminated by a single stigma. Fruit a pair of obliquely ovoid achenes or a single achene.

Anthers equally attached to the stalk: stigmas 2: leaf-blades terete.

Anthers unequally attached to the stalk: stigma 1: leaf-blades flat.

1. CYMODOCEA.

2. HALODULE.

6 1. **CYMODOCEA** Koen. Rootstocks elongate. Leaves terete or half-terete above the sheaths. Flowers hidden in the leaf-sheaths, or the staminate long-exserted.

6 1. **C. manatorum** Aschers. Plants growing on sandy bottoms, the short stems arising at the nodes: leaf-blades narrowly linear, 5–25 cm. long: fruits 6–7 mm. long, short-stipitate, prominently beaked.—Shallow water, U. S. keys, U. keys, and L. keys.—[E. K.].—(*Ber., Bah., Cuba, Ant.*)—MANATEE-GRASS.

2. **HALODULE** Endl. Rootstocks elongate. Leaves flat above the sheaths. Flowers borne in the leaf-sheaths, or the staminate long-exserted.

1. **H. Wrightii** Aschers. Plants growing on sandy bottoms, the short stems arising from the nodes of the rootstock: leaf-blades narrowly linear, 3–40 cm. long: nutlets sessile.—Shallow water.—(*Cuba, Ant.*)

### Order ALISMALES.

Marsh or aquatic herbs. Leaves alternate, mere phyllodia, or with dilated blades. Flowers regular. Perianth of sepals and usually also of petals. Androeceum of 3–6 stamens or more. Gynoeceum of 3–many carpels.

#### FAMILY 1. ALISMACEAE. WATER-PLANTAIN FAMILY.

Annual or perennial herbs. Leaves basal, the blades flat, often with basal lobes, or mere phyllodia. Flowers perfect, monoecious or dioecious, whorled. Sepals herbaceous. Petals tender, white or pink. Gynoeceum of few to many carpels. Fruit a head of flattened or turgid achenes.

Flowers perfect: carpel-bodies turgid.

1. **ECHINODORUS**.

Flowers monoecious or dioecious: carpel-bodies flat, sometimes ridged or winged.

2. **SAGITTARIA**.

1. **ECHINODORUS** L. C. Rich. Leaves with rounded basal lobes. Flowers perfect, in racemes or panicles. Stamens 12–30. Achenes numerous, with turgid bodies, in a bristly naked head.

1. **E. cordifolius** (L.) Griseb. Leaf-blades lanceolate to broadly ovate, 4–20 cm. long: scapes 1–5 dm. tall, the flower whorls somewhat remote: petals 4–6 mm. long: fruit heads 4–6 mm. thick: achenes 2.5–3 mm. long, long-beaked.—Pools and lime-sinks, L. keys.—(*Bah., Cuba, Ant.*)—BUR-HEAD.

2. **SAGITTARIA** L. Leaves often with basal lobes, sometimes lobeless or mere phyllodia. Flowers monoecious or dioecious, the upper ones usually staminate. Stamens mainly numerous. Achenes numerous, with flat bodies, in dense heads.

1. **S. lancifolia** L. Leaf-blades elliptic or nearly so to narrowly elliptic-lanceolate, 30–60 cm. long, mainly 5–9-nerved: pedicels of pistillate flowers relatively long, their bracts of a lanceolate type: achenes 2.5–3 mm. long.—Lime-sinks and pools, L. keys.—[E. K.].—(*Bah., Cuba, Ant.*)—ARROW-HEAD.

### Order HYDROCHARITALES.

Perennial aquatic herbs with rootstocks. Leaves usually with blades. Flowers monoecious or dioecious, or rarely perfect, from spathes. Perianth double, or corolla wanting. Androeceum of 1–12 stamens. Gynoeceum 3–15-carpellary. Ovary inferior. Fruit capsular or baccate.

Gynoeceum 3-carpellary, or rarely 2-, 4- or 5-carpellary: ovary 1-celled: stigmas 3.

Fam. 1. **ELODEACEAE**.

Gynoeceum 6–12-carpellary: ovary 6–12-celled: stigmas 6–12.

Fam. 2. **HYDROCHARITACEAE**.



FAMILY 1. **ELODEACEAE.** TAPE-GRASS FAMILY.

Plants with leafy stems, or leaves basal, often greatly elongate. Gynoecium 2-5-carpellary, the ovary 1-celled.

1. **HALOPHILA** Thouars. Marine herbs. Leaves opposite or whorled. Flowers dioecious, the staminate pedicelled, the pistillate sessile in the spathes. Fruit included in the spathe.

1. **H. Engelmannii** Aschers. Leaf-blades linear, oblong or oblanceolate, 1-3 cm. long, sharply serrulate, 3-nerved, sessile: flowers and fruits not seen.—Shallow water, U. S. keys, U. keys, L. keys.—[E. K.]—(*Bah.*)

FAMILY 2. **HYDROCHARITACEAE.** FROG'S-BIT FAMILY.

Plants with leaves in clusters on the rootstocks. Gynoecium 6-12-carpellary, the ovary 6-12-celled.

1. **THALASSIA** Banks. Marine herbs. Leaves mere strap-like blades. Flowers dioecious, on scapes arising from the leaf-clusters; the staminate distinctly pedicelled, with 3 petaloid sepals, and 9 stamens with very short filaments and long anthers; the pistillate flowers nearly sessile. Fruit rugose, echinate or mammillate, valvate.

1. **T. testudinum** Koenig & Sims. Leaves 2-5 together; blades linear, 5-30 cm. long, about 1 cm. wide or less, the bases persistent on the short stems: sepals oblong, 10-12 mm. long: anthers 8 mm. long: fruits erect, densely mammillate.—Shallow water, U. S. keys, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—TURTLE-GRASS.

Order **POALES.**

Mostly perennial caulescent or acaulescent plants, known as grasses and sedges. Stems sometimes conspicuously jointed. Leaves alternate, mostly sheathing at the base: blades usually narrow and elongate, entire or nearly so. Flowers variously disposed in a simple or compound inflorescence, perfect or rarely monoecious or dioecious, incomplete, inconspicuous, borne in the axils of chaffy bracts or scales (glumes). Fruit a caryopsis (grain) or an achene, or rarely a nut, or baccate.

Leaves 2-ranked, their sheaths with un-united margins: stem mostly hollow: fruit a grain (caryopsis). Fam. 1. POACEAE.

Leaves 3-ranked, their sheaths with united margins: stem solid: fruit an achene. Fam. 2. CYPERACEAE.

FAMILY 1. **POACEAE.** GRASS FAMILY.

Annual or perennial herbs, or rarely shrub-like or tree-like plants. Stems (culms) usually hollow, the nodes closed. Leaves with a scarios ring (ligule) at the sheath-orifice. Inflorescence of spikes, racemes, or panicles. Spikelets of 2-many 2-ranked imbricate bracts (scales), the upper ones bearing a flower surrounded by a bract-like organ (pale) which is placed with its back to the axis (rachilla), which is often thickened and appears as a hard projection (callus) at the base of the scale. Flowers perfect, staminate, or pistillate. Stamens 1-6, rarely more, usually 3. Fruit sometimes nut-like.

- A. Spikelets falling from the pedicel entire (see also no. 22 of section B), naked, or enclosed in bristles or sometimes in a bur-like involucre, or immersed in the internodes of a readily disarticulating rachis, 1-flowered, or if 2-flowered the lower flower staminate; no upper empty scales: rachilla not extending beyond the uppermost scale.
- Spikelets round or somewhat dorsally compressed: empty scales manifest: hilum punctiform.
- Flowering scale and palet hyaline, thin, much more delicate in structure than the thick-membranous or coriaceous empty scales.
- Spikelets unisexual, the pistillate borne in the lower, the staminate in the upper, part of the same spike. TRIBE I. MAYDEAE.
- Spikelets in pairs, one sessile, the other pedicellate, the former perfect, the latter sometimes perfect, more commonly with a staminate flower, often empty or reduced to one or two scales, or occasionally wanting. TRIBE II. ANDROPOGONEAE.
- Flowering scale, at least that of the perfect flower, similar in texture to the empty scales, or frequently thicker and firmer, never hyaline and thin. TRIBE III. PANICEAE.
- Spikelets much compressed laterally: empty scales none or rudimentary: hilum linear. TRIBE IV. ORYZEAE.
- B. Spikelets with the empty scales persistent, the rachilla hence articulated above them (below them in no. 22 and the spikelet falling from the pedicel entire), 1-many-flowered; frequently the upper scales are empty: rachilla often produced beyond the uppermost scale.
- Spikelets borne in open or spike-like panicles or racemes, usually upon distinct and often long pedicels.
- Spikelets 1-flowered. TRIBE V. AGROSTIDEAE.
- Spikelets 2-many-flowered.
- Flowering scales usually shorter than the empty ones, the awn dorsal and usually bent. TRIBE VI. AVENEAE.
- Flowering scales usually longer than the empty ones, the awn terminal and straight, rarely dorsal, sometimes wanting. TRIBE VII. CHLORIDEAE.
- Spikelets in two rows. TRIBE VIII. FESTUCEAE.

## TRIBE I. MAYDEAE.

Fertile spikelets imbedded in the internodes of the thick rachis.

1. TRIPSACUM.

## TRIBE II. ANDROPOGONEAE.

Some or all of the racemes sessile.

2. ANDROPOGON.

All of the racemes more or less pedunculate.

Pedicellate spikelets present and usually staminate.

3. HOLCUS.

Pedicellate spikelets wanting.

4. SORGHASTRUM.

## TRIBE III. PANICEAE.

Spikelets not sunken in the rachis.

Spikelets naked, not involucre.

Empty scales 2.

Lower empty scale with a thickened ring-like callus.

5. PASPALUM.

Lower empty scale unappendaged.

Spikelets ovate to orbicular, usually obtuse, rarely acute.

6. ERIOCHLOA.

Spikelets lanceolate, acute or acuminate.

7. SYNTHESISMA.

Empty scales 3.

Empty scales awned or awn-pointed.

Stems erect: leaf-blades long and narrow: racemes usually of many spikelets.

9. ECHINOCHLOA.

Stems creeping: leaf-blades short and broad: racemes or clusters usually of few spikelets.

10. OPLISMENUS.

Empty scales not awned.

Stems and branches not woody nor bamboo-like.

Fruiting scale rigid, the margins inrolled.

11. PANICUM.

Fruiting scale not rigid, the hyaline margins not inrolled.

Spikelets in very slender, one-sided, racemes which are usually whorled or approximate.

7. SYNTHESISMA.

Spikelets in panicles or panicle racemes, the latter not whorled, commonly distant.

Stems and branches woody, bamboo-like, outer scales papery, woolly-tipped.

Spikelets involucrate.

Involucre of numerous bristles.

Bristles persistent: spikelets deciduous.

Bristles deciduous with the spikelets.

Involucre of 2 spine-bearing valves.

Spikelets sunken in one side of the flat rachis.

8. VALOTA.

12. LASIACIS.

13. CHAETOCHELOA.

14. CENCHROPSIS.

15. CENCHRUS.

16. STENOTAPHRUM.

#### TRIBE IV. ORYZEAE.

Spikelets perfect: empty scales wanting or present as rudiments.

17. HOMALOCENCHRUS.

#### TRIBE V. AGROSTIDEAE.

Flowering scale indurate when mature and very closely embracing the grain, or at least firmer than the empty scales.

Flowering scale 3-awned.

Flowering scale 1-awned.

Flowering scale usually hyaline or membranous at maturity, at least more delicate than the empty ones: grain loosely enclosed.

18. ARISTIDA.

19. MUHLENBERGIA.

20. SPOROBOLUS.

#### TRIBE VI. AVENEAE.

Flowers perfect: spikelets drooping: grain furrowed, adhering to the scale.

21. AVENA.

#### TRIBE VII. CHLORIDEAE.

Spikelets deciduous as a whole.

Spikelets with at least the empty scales persistent.

Spikelets with one perfect flower.

No scales above the flowering scale.

One-several scales above the flower.

Second empty scale acute: awn of flowering scales usually long.

Second empty scale truncate or 2-toothed: flowering scales awnless or awn-pointed.

Spikelets with 2 or 3 perfect flowers.

Spikes commonly digitate: spikelets crowded.

Spikes with terminal spikelets.

Spikes with the rachis extending beyond the spikelets in a manifest point.

Spikes distant: spikelets alternate.

22. SPARTINA.

23. CAPRIOLA.

24. CHLORIS.

25. EUSTACHYS.

26. ELEUSINE.

27. DACTYLOCTENIUM.

28. LEPTOCHLOA.

#### TRIBE VIII. FESTUCEAE.

Hairs on the rachilla or flowering scale very long, and enclosing the latter: tall reed-like grasses.

Hairs on the rachilla or flowering scales shorter than the scale: lower grasses not reed-like.

Flowering scales 1-3-nerved.

Stigmas barbellate: styles elongate.

Stigmas plumose: styles short or wanting.

Lateral nerves of the flowering scale pilose.

Inflorescence simple or compound, contracted or open, the spikelets on pedicels of varying length.

Inflorescence composed of long branches along which the appressed spikelets are arranged on short pedicels, or sometimes only a 1-sided raceme.

Lateral nerves of the flowering scale glabrous.

Flowering scales 5-nerved.

Empty basal scales 3-6.

Empty basal scales 2.

29. PHRAGMITES.

30. MONANTHOCHLOA.

31. TRIDENS.

32. DIPLACHNE.

33. ERAGROSTIS.

34. UNIOLA.

35. DISTICHLIS.

1. **TRIPSACUM** L. Erect monoecious plants with stout rootstocks. Spikes articulate, elongate. Staminate spikelets 2-flowered, in pairs. Pistillate spikelets 1-flowered, in excavations in the rachis, the scales thick and shining.

1. **T. floridanum** Porter. Plants 1 m. tall or less, the stem smooth, glabrous: leaf-blades 4 dm. long or less, usually less than 5 mm. wide: spikes single, slender, 8–20 cm. long: pistillate spikelets 6–7 mm. long, the outer scale acute or acuminate: staminate spikelets 5–6 mm. long, the 2 outer scales oblong.—Pinelands, L. keys.—[E. K.]—GAMMA-GRASS. SESAME-GRASS.

2. **ANDROPOGON** L. Erect plants with spike-like racemes, which often protrude from the side of a membranous spathe-like sheath. Sessile spikelet of 4 scales, bearing a straight contorted or spiral awn, or sometimes awnless. Pedicellate spikelet usually sterile, of 1 or 2 scales, sometimes of 4 scales and enclosing a staminate or more rarely a perfect flower, or frequently entirely wanting.—BROOM-GRASS. BEARD-GRASS. SAND-GRASS.

Sessile spikelets of all pairs, even the lowest, in all the racemes, alike.

Inflorescence oblong to oval or obovate, the branches many times divided, the lower ones elongated, forming 1 or more corymbiform masses; upper stem-leaves usually equalling or exceeding the inflorescence.

Inflorescence long and narrow, commonly linear, the branches not much divided nor the lower ones excessively elongated, hence forming no corymbiform masses; upper stem-leaves usually shorter than the inflorescence.

Sessile spikelets of the lower pair or pairs differing from those above, staminate or empty, awnless.

1. *A. tenuispatheus*.

2. *A. longiberbis*.

3. *A. ceriferus*.

1. **A. tenuispatheus** Nash. Stems 5–15 dm. tall: spathes 2.5–3 cm. long, fastigiate crowded: racemes in pairs, 1–2 cm. long, protruding from the side of the broad spathe: sessile spikelet 3–4 mm. long, the awn 10–15 mm. long.—Edges of hammocks and lime-sinks, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

2. **A. longiberbis** Hack. Stems 5–10 dm. tall, tufted: leaf-sheaths appressed-hirsute; blades 5 dm. long or less, 7 mm. wide or less, those on the innovations densely appressed-hirsute, those on the stem more or less so beneath, rough above: spathes 3–5 cm. long, usually considerably exceeding the racemes, commonly brown: racemes 3–4 cm. long, stout: sessile spikelet 4–4.5 mm. long, the awn straight or nearly so, 12–16 mm. long.—Pinelands, L. keys.—[E. K.]

3. **A. ceriferus** Hack. Stems 2 m. tall or less, smooth and glabrous, wax-bearing at the nodes: leaf-blades 7 dm. long or less and 1 cm. wide: panicle 3–8 dm. long, narrow: spathes lanceolate, 1.5–2 cm. long: racemes about 6 mm. long, linear-lanceolate.—Hammocks, Elliott's Key. Nat. of S. Am.

3. **HOLCUS** L. Perennial herbs or shrubby plants with large terminal panicles, the primary branches verticillate. Spikelets of 4 scales, dorsally compressed, pubescent or glabrous. Sessile spikelets with the 2 outer scales indurated, the third and fourth hyaline, the latter awned or awnless. Pedicellate spikelet with the 2 outer scales firm-membranous, or rarely reduced to 1 or 2 scales and fruitless. [*Sorghum* Pers.]

1. **H. Sorghum** L. Stems 1 m. tall or more: leaf-blades mostly 4–8 cm. wide: panicle 1–3 dm. long, sometimes longer, the branches erect, or in some forms drooping: sessile spikelets somewhat pilose, at maturity usually glabrous, excepting the small pilose depression, the awn when present usually less than 1 cm. long, the other spikelet with a very short pedicel.—Hammocks and cultivated grounds, U. keys, L. keys. Nat. of the E. Indies.—(*Cuba, Ant.*)—SORGHUM.

4. **SORGHASTRUM** Nash. Usually tall perennial grasses, with terminal panicles with the primary branches usually solitary and branched from the base, hence appearing as if whorled. Sessile spikelets dorsally compressed, of

4 scales, the outer 2 indurated, often hairy, the third and fourth scales hyaline, the latter long-awned, the awn spiral at the base. Lodicules glabrous.

1. **S. secundum** (Ell.) Nash. Stems 8–14 dm. tall: panicle 2–4 dm. long, one-sided, the ultimate divisions much curved, making the spikelets reflexed: spikelets 6–8 mm. long, the awn twice bent, closely spiral to the second bend, thence loosely twisted, the column very much exerted.—Pinelands, L. keys.

5. **PASPALUM** L. Erect or diffuse plants with an inflorescence composed of one or more unilateral racemes, arranged singly, in pairs, or in panicles. Spikelets 1-flowered, obtuse, or rarely short-acuminate, nearly sessile or short-pedicelled, singly or in pairs, on one side of a narrow and usually winged rachis. Scales 3 or rarely 4.

Stem with 1-several raceme-bearing naked branches from the uppermost sheath.

Leaf-blades conspicuously ciliate.

Leaf-blades not ciliate.

Spikelets glabrous.

Spikelets with the first scale pubescent.

Stem simple, without raceme-bearing branches from the upper sheath.

Racemes 2-several, but not in pairs.

Stems tufted.

Spikelets obovate, 1.5 mm. long, pubescent with spreading glandular-tipped hairs.

Spikelets elliptic, 2 mm. long, sparsely pubescent with long appressed hairs.

Stems single, on a scaly rootstock.

Racemes in pairs, or rarely in 3's, or with another raceme below.

Spikelets ovate, 2.5–3 mm. long, pubescent: midvein of the second scale present.

Spikelets ovate-lanceolate, 3–4 mm. long, glabrous: midvein of the rugose second scale suppressed.

1. *P. ciliatifolium*.

2. *P. epile*.

3. *P. Helleri*.

4. *P. Simpsonii*.

5. *P. caespitosum*.

6. *P. monostachyum*.

7. *P. distichum*.

8. *P. vaginatum*.

1. **P. ciliatifolium** Michx. Stems tufted, 4–8 dm. tall: leaf-sheaths ciliate on the overlapping margin; blades smooth and glabrous on both surfaces: racemes single, or sometimes in 2's, 5–11 cm. long: spikelets in pairs, 1.5–1.8 mm. broad, oval to broadly obovate.—Hammocks, U. keys.—[E. K.]—(Ber.)

2. **P. epile** Nash. Stems 6–8 dm. tall, like the rest of the plant, glabrous: leaf-blades thick, firm, linear-lanceolate: racemes single or in pairs, 6–10 cm. long: spikelets in pairs, 2 mm. long and about 1.5 mm. wide, broadly obovate.—Hammocks, Key West.—(Ant.)

3. **P. Helleri** Nash. Stems 6–8 dm. tall: leaf-blades densely pubescent with long hairs above at the very base: racemes in 3's, 10–13 cm. long: spikelets about 2.2 mm. long and 1.3 mm. wide.—Hammocks, Key West.—(Bah., Cuba, Ant.)

4. **P. Simpsonii** Nash. Stems 4–8 dm. tall: leaf-blades lanceolate, glabrous on both surfaces, ciliate on the margins below the middle: racemes 3–5, spreading, 2–7 cm. long: spikelets about 0.8 mm. wide.—Pinelands and edges of hammocks, L. keys.—[E. K.]—(Bah., Cuba, Ant.)

5. **P. caespitosum** Fluegge. Stems 3–6 dm. tall: leaf-blades narrowed at both ends: racemes erect, 2–6, 1.5–6 cm. long, slender, the rachis flat, winged, about 0.5 mm. broad, about one-half as wide as the spikelets: spikelets about 1 mm. broad.—Pinelands and edges of hammocks, L. keys.—[E. K.]—(Ber., Bah., Cuba, Ant.)

6. **P. monostachyum** Vasey. Stems rigid, 6–10 dm. tall: leaf-blades elongate, stiff, involute, at least when dry, long-acuminate, glabrous: racemes solitary, or rarely 2 together, 1–2 dm. long, erect: spikelets in pairs, 3 mm. long and about 1.5 mm. wide, elliptic.—Lime-sinks, L. keys.—[E. K.]

7. **P. distichum** L. Stems 1–6 dm. tall: leaf-sheaths usually crowded and overlapping, especially at the base and on the innovations; blades generally gla-



brous: racemes ascending, 2-5 cm. long: spikelets singly disposed, the third scale strongly pubescent at the apex.—Hammocks and lime-sinks, L. keys.—(*Ber., Bah., Cuba, Ant.*)

8. *P. vaginatum* Sw. Stems 2-6 dm. tall: leaf-sheaths usually crowded and overlapping, at least at the base and on the innovations, glabrous: blades folded, or involute when dry, 1.5 dm. long or less, 2-4 mm. wide, glabrous or nearly so: racemes usually in pairs, erect or ascending, 3-7 cm. long: spikelets singly disposed, the 2 outer scales thin, the third scale glabrous at the apex.—Hammocks, L. keys.—(*Ber., Bah., Cuba, Ant.*)

6. *ERIOCHLOA* H.B.K. Erect plants with an inflorescence of spike-like one-sided racemes which are racemously arranged. Spikelets imbricated, arranged in 2 rows on a flat rachis, acute or acuminate. Scales 3, the 2 outer membranous, appressed-pubescent, empty, the third scale glabrous and shining, shorter, at length indurated, awn-pointed or short-awned at the apex.

1. *E. Michauxii* (R. & S.) A. Hitchc. Stems single, 7-15 dm. tall: leaf-sheaths glabrous or softly pubescent; blades 1-4.5 dm. long, 4-15 mm. wide: inflorescence 1.5-4 dm. long: racemes 8-20, 3-15 cm. long: spikelets 12-40, 5-5.5 mm. long, ovate, the third scale about 3.5 mm. long, rather finely transverse-rugose.—Pinelands and edges of hammocks, L. keys.—[E. K.]

7. *SYNTHERISMA* Walt. Diffuse plants with an inflorescence of spike-like racemes. Spikelets narrow, acute, in 2's or 3's on one side of the flat and winged or triangular rachis, one of the spikelets usually longer-pedicelled than the rest. Scales 3 or 4, the 3 outer membranous, the first small or wanting, the fourth scale chartaceous, glabrous and shining, at length indurated.—CRAB-GRASS or FINGER-GRASS.

Rachis of the racemes with the angles naked, not winged: first scale wanting or sometimes present as an inconspicuous rudiment.

Rachis of the racemes with the lateral angles broadly winged, thus making it appear flat: first scale usually present.

Pedicels terete or obscurely angled, sparingly, if at all, hispidulous.

Pedicels sharply 3-angled, the angles strongly hispidulous.

Racemes very slender, the rachis usually less than 0.5 mm. wide: spikelets  $\frac{1}{4}$  as wide as long, acuminate: fourth scale greenish when mature.

Racemes stouter, the rachis usually exceeding 0.7 mm. wide: spikelets  $\frac{1}{4}$  as wide as long or more, acute: fourth scale yellowish-white when mature.

1. *S. filiforme*.

2. *S. serotinum*.

3. *S. digitatum*.

4. *S. marginatum*.

1. *S. filiforme* (L.) Nash. Stem 1.5-7 dm. tall: leaf-sheaths papillose-hirsute; blades 3-20 cm. long, 1-4 mm. wide: axis of the inflorescence 1-3 cm. long: racemes 2-5: spikelets 0.75 mm. wide, elliptic, acute, in pairs, the fourth scale exceeding the third, deep chestnut-brown when mature.—Hammocks and pine-lands, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

2. *S. serotinum* Walt. Stems 2-5 dm. tall: leaf-blades 1.5-10 cm. long, 3-10 mm. wide, ascending, pubescent on both surfaces: axis of the panicle 1-2 cm. long: racemes 2-6, 2.5-10 cm. long, ascending, usually alternate: spikelets about 1.5 mm. long, about 0.6 mm. wide, elliptic, acute, usually in pairs.—Hammocks, U. keys.—(*Cuba.*)

3. *S. digitatum* (Sw.) A. Hitchc. Stems tufted, 4-10 dm. tall or less: leaf-blades 2-12 cm. long, 2-7 mm. wide, papillose-hirsute on both surfaces: axis of the inflorescence 4 cm. long or less: racemes 4-13, 4-13 cm. long, usually in a whorl at the base and the remainder alternate or approximately in pairs; spikelets about 2.5 mm. long, about 0.5 mm. wide, lanceolate, acuminate, in pairs, occasionally with a delicate basal bristle.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)



3 4. **S. marginatum** (Link) Nash. Stems 8 dm. long or less: leaf-blades 2-8 cm. long, 5-10 mm. wide, glabrous or pubescent on both sides: axis of the inflorescence 2 cm. long or less: racemes 2-9, 2-12 cm. long, alternate, in pairs or whorled: spikelets 3-3.5 mm. long, about 0.8 mm. wide, lanceolate, slenderly acute, in pairs.—Hammocks, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah. Ant.*)

19 8. **VALOTA** Adans. Perennial grasses with narrow or contracted densely hairy panicles. Spikelets lanceolate, acute or acuminate. Scales 4, the outer 3 membranous, empty, the second and usually also the much shorter first densely silky-pilose or long-ciliate on the margins, often acuminate, and sometimes with a short bristle at the apex, the fourth scale shorter, chartaceous, glabrous and shining, finally indurated.

2 1. **V. insularis** (L.) Chase. Stems 1-1.5 m. tall: leaf-blades 1-3 dm. long, generally 5-20 mm. wide: panicle usually 2-3 dm. long, 1-2 cm. wide: spikelets 4-5 mm. long, long-acuminate; fruiting scale chestnut-brown, lanceolate, with a long-acuminate green tip.—Hammocks and cultivated grounds, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

70 9. **ECHINOCHLOA** Beauv. Erect plants with the inflorescence of several-many spike-like racemes. Spikelets crowded in small clusters or racemes in 2 rows on all sides of the flat rachis. Scales 4, the 3 outer membranous, spiny-hirsute or hispid, the first one often awn pointed, the second and third awn-pointed or awned (rarely awnless), the latter bearing the longer awn, the fourth scale chartaceous, glabrous and shining, at length indurated.

34 1. **E. Crus-galli** (L.) Beauv. Stems 6-12 dm. tall: leaf-blades 1.5-6 dm. long, 6-25 mm. wide, glabrous: panicle of 5-15 erect or ascending branches, or the lower branches spreading or reflexed and sometimes 6-8 cm. long: spikelets ovate, densely crowded in 2-4 rows on one side of the rachis, the second and third scales awned, the fourth scale abruptly pointed.—Hammocks and cultivated grounds, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—BARNYARD-GRASS.

5 10. **OPLISMENUS** Beauv. Creeping plants with broad flat leaf-blades and an inflorescence composed of spikes, bearing on the lower side scattered clusters of a few spikelets. Scales 4, the 3 outer membranous, the first and second awned, the third usually awned, the fourth one shorter than the others, obtuse, awnless, chartaceous, finally indurated.

32 1. **O. hirtellus** (L.) R. & S. Stems prostrate, rooting at the nodes: leaf-blades ovate to ovate-lanceolate, acuminate, 1.5-6 cm. long: panicle 2-8 cm. long, its short branches erect to spreading: spikelets 2.5-3 mm. long, the longer awns 6-8 mm. long.—Hammocks, U. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

22 11. **PANICUM** L. Erect, or diffuse herbaceous plants varying much in habit, with elongate or broad leaf-blades, and the spikelets in open or contracted panicles. Spikelets 1-2-flowered, lanceolate, oblong, ovate to obovate or globose, obtuse to acute or acuminate. Scales 4, the 3 outer membranous, the first and second empty, the first usually much shorter than the spikelet, sometimes minute, the third one empty or enclosing a shorter hyaline palet and often also a staminate flower, the fourth scale shorter and usually more obtuse than the others, chartaceous, glabrous and shining, at length indurated, enclosing a palet of similar texture and a perfect flower.—PANIC-GRASS.

Spikelets disposed singly or in pairs in one-sided racemes, the pedicels short.

## I. PASPALOIDEA.

Spikelets in panicles, but not borne in one-sided racemes, the pedicels short or long.

Basal leaf-sheaths round or but little flattened, not keeled.  
Fourth scale smooth.

Rootstocks and stolons naked or with few large scales: sand-binders.

Rootstocks, at least when young, and stolons covered with numerous small broad acute scales.

Fourth scale transversely rugose.

Basal leaf-sheaths much compressed, broad, keeled, often equitant.

## II. HALOPHILA.

## III. VIRGATA.

## IV. MAXIMA.

## V. AGROSTOIDEA.

## TRIBE I. PASPALOIDEA.

Fourth scale of the spikelet smooth.

Fourth scale transversely rugose; usually the outer scales of the spikelets with anastomosing veinlets.

Branches of the panicle terminated by a spikelet.

Spikelets broadly obovoid, 2.5-3 mm. long, obtuse or acutish: anastomosing veinlets numerous and prominent.

Spikelets oval, about 4 mm. long, acute or acuminate: anastomosing veinlets few and faint.

Branches extending beyond the spikelet as an awn-like projection.

1. *P. geminatum*.

2. *P. fasciculatum*.

3. *P. adspersum*.

4. *P. Chapmanii*.

## TRIBE II. HALOPHILA.

Large grass with acuminate spikelets 5-6 mm. long.

5. *P. amarulum*.

## TRIBE III. VIRGATA.

Stiff grasses with ample panicles.

6. *P. virgatum*.

## TRIBE IV. MAXIMA.

Tall stout grasses with large leaves and ample panicles.

7. *P. maximum*.

## TRIBE V. AGROSTOIDEA.

Tufted grasses without rootstocks.

8. *P. agrostoides*.

1. *P. geminatum* Forsk. Stems 6-12 dm. long, usually clothed with sheaths below: leaves glabrous; blades 2.5 dm. long or less, 6-10 mm. wide: racemes 10-20, one-sided, the rachis broadly winged, appressed, 2-3.5 cm. long: spikelets about 2.5 mm. long, ovate, acute, glabrous, singly disposed in 2 rows, the first scale broader than long and clasping the spikelet at its base, truncate at the apex, the fourth scale not transversely wrinkled.—Hammocks and cultivated grounds, U. keys, L. keys.—(*Bah., Cuba, Ant.*)

2. *P. fasciculatum* Sw. Stems tufted, decumbent, finally branching at the base and often rooting at the lower nodes, glabrous, 3-8 dm. long: leaf-sheaths glabrous or pubescent; blades 2.5 dm. long or less, 8-20 mm. wide, glabrous or pubescent: panicle 1-2 dm. long, its branches ascending or nearly erect: spikelets usually borne in pairs on one side of the branches on frequently bristle-bearing pedicels, brown or green, 2.5-3 mm. long, broadly obovoid, turgid, glabrous, obtuse, the second and third scales with anastomosing veinlets, the fourth scale transversely rugose.—Hammocks, L. keys.—(*Bah., Cuba, Ant.*)

3. *P. adspersum* Trin. Stems 4-6 dm. tall, decumbent, glabrous, branching below: leaf-sheaths glabrous; blades 2 dm. long or less, 1.5-2 cm. wide, glabrous: panicle 1-2 dm. long, its branches ascending or nearly erect: spikelets usually borne in pairs on one side of the branches, green, glabrous or pubescent, oval, abruptly acuminate, about 4 mm. long, the second and third scales with a few anastomosing veinlets, the fourth scale transversely rugose.—Hammocks and cultivated grounds, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

4. *P. Chapmanii* Vasey. Glabrous or nearly so: stems 3-6 dm. tall: leaf-blades 3 dm. long or less, 4-6 mm. wide, long-acuminate: inflorescence 1.5-2.5

dm. long, composed of appressed one-sided racemes, the lower ones 3-5 cm. long: spikelets nearly sessile, 2 mm. long, singly disposed, broadly obovoid, glabrous.—Hammocks, pinelands and cultivated grounds, U. keys, L. keys.—(Ber., Bah.)

38 **5. P. amarulum** Hitchc. & Chase. Glabrous, glaucous: stems 8-12 dm. tall: leaf-sheaths overlapping; blades generally 3-6 dm. long, 8-16 mm. wide, long-acuminate, thick, involute, at least toward the apex: panicle large, but narrow, 3-7 dm. long: spikelets 4-5 mm. long, usually rather narrow, the first scale about  $\frac{1}{2}$  as long as the spikelet.—Shores and coastal sand-dunes, U. S. keys, U. keys.—[E. K.]—(Bah.)

39 **6. P. virgatum** L. Glabrous: stems erect, 9-15 dm. tall: leaf-blades elongate, 3 dm. long or more, 6-12 mm. wide, flat, glabrous or pubescent: panicle 1.5-5 dm. long, its branches widely spreading or sometimes nearly erect: spikelets ovate, acuminate, 4-4.5 mm. long, glabrous.—Hammocks, U. keys, L. keys.—[E. K.]—(Ber., Cuba.)

40 **7. P. maximum** Jacq. Stems 1-2 m. tall or more, leafy: leaf-sheaths glabrous or tuberculate-pubescent; blades 2-8 dm. long or more, 1-4 cm. wide: panicle 3-6 dm. long: spikelets 3-4 mm. long.—Hammocks, U. keys, L. keys, L. S. keys.—(Ber., Bah., Cuba, Ant.)

4 **8. P. agrostoides** Muhl. Stems 4-8 dm. tall, much-branched, compressed: leaf-blades 3 dm. long or more, 4-8 mm. wide: panicle pyramidal, 1-3 dm. long: spikelets 1.5-2 mm. long.—Lime-sinks, L. keys.—[E. K.]

9 **12. LASIACIS** A. Hitchc. Shrubs with erect or reclining stems and branches, and flat leaf-blades. Spikelets very thick, often globular, paniculate, obliquely articulated to the pedicels. Scales 4, the 3 outer papery, shining, many-nerved, usually woolly at the apex, the first one less than  $\frac{1}{2}$  as long as the spikelet: fourth or fruiting scales bony-indurated, woolly at the apex, enclosing a palet of similar texture and a perfect flower.

41 **1. L. divaricata** (L.) A. Hitchc. Stems 2-3 m. tall, reclining: leaves crowded and numerous; sheaths overlapping, ciliate on the margin; blades spreading or ascending, glabrous, acuminate, the larger ones 8-10 cm. long, 13-35 mm. wide: panicle 1 dm. long or less: spikelets 4-5 mm. long, the first scale very broad, clasping the base of the spikelet.—Hammocks, U. keys, L. keys.—[E. K.]—(Bah., Cuba, Ant.)—SMALL-CANE.

2 **13. CHAETOCHLOA** Scribn. Erect or diffuse plants with dense terminal cylindric spike-like or narrowly thyrsoid panicles. Spikelets with 1, or a cluster of 2-several sterile barbed bristle-like persistent branches. Three outer scales membranous, the fourth scale usually shorter than the spikelet, chartaceous, glabrous, shining, finally indurated.—FOXTAIL. FOXTAIL-GRASS.

Inflorescence with the spikelets racemously arranged: bristles 5-16 at the base of each spikelet, involucrate.

Inflorescence stout: bristles exceeding twice the length of the spikelet.

Inflorescence slender: bristles equalling or twice the length of the spikelet.

Inflorescence with the spikelets in clusters or on branches: bristles 1-3 at the base of each spikelet, not involucrate.

Second scale of the spikelet as long as the flowering scale or very nearly so.

Second scale manifestly shorter than the flowering scale.

Spikelets 3 mm. long or more.

Spikelets less than 3 mm. long.

1. *C. imberbis*.

2. *C. gracilis*.

3. *C. magna*.

4. *C. macrosperma*.

5. *C. caudata*.

43 **1. C. imberbis** (Poir.) Scribn. Stems 3-7 dm. tall, slender: leaf-blades 1-3 dm. long, 3-7 mm. wide, the upper surface often with a few long hairs at the base:

racemes 2-5 cm. long, nearly 1 cm. in diameter, exclusive of the bristles, the rachis pubescent: bristles 5-10 mm. long: spikelets ovoid, acute, 2-2.5 mm. long, the flowering scale acute, striate, finely transverse-rugose.—Low hammocks, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

2. *C. gracilis* (H.B.K.) Scribn. & Merr. Stems erect, 3-7 dm. tall, slender: blades involute-setaceous, 2 dm. long or less, 1-3 mm. wide: racemes 2-6 cm. long, 3-5 mm. in diameter: bristles 5-8, very short, equalling or twice as long as the spikelet: spikelets 2 mm. long, ovoid, acute, the flowering scale acute, abruptly apiculate, transversely rugose.—Hammocks and cultivated grounds, L. keys.

3. *C. magna* (Griseb.) Scribn. Stems stout, 1-4 m. tall, branching at the base: leaf-sheaths glabrous, compressed; blades 3-6 dm. long, 1-3 cm. wide, rough: panicle usually interrupted below, 1-3.5 dm. long, 2-5 cm. in diameter; bristles 1-3, green, 8-11 mm. long: spikelets elliptic, acute, 2 mm. long.—Hammocks and sand-dunes, U. keys.—[E. K.]—(*Ant.*)

4. *C. macrosperma* Scribn. & Merr. Stems 6-12 dm. tall: leaf-blades linear-lanceolate, 1-3 dm. long: panicle 1-2.5 dm. long, 2-4 cm. in diameter, exclusive of the bristles: bristles single, 1.5-3 cm. long, green: spikelets narrowly ovoid, acute, 3 mm. long, the flowering scale acute, narrowly ovoid, finely transverse-rugose.—Hammocks and sand-dunes, U. keys.—[E. K.]—(*Bah.*)

5. *C. caudata* (Lam.) Scribn. Stems 3-6 dm. tall: leaf-sheaths pubescent: blades linear, 1-3 dm. long, 3-5 mm. wide, pubescent, filiform-attenuate at the apex: panicle 5-15 cm. long, the rachis slender and flexuous, pilose: bristles single, flexuous, 4-10 mm. long: spikelets ovoid, acute, the flowering scale ovoid, acute, short-apiculate, transversely undulate-rugose below.—Low hammocks and cultivated grounds, Key West.—(*Cuba, Ant.*)

14. **CENCHROPSIS** Nash. Erect plants with long rootstocks and terminal spicate inflorescence. Spikelets single, the involucre of 1 or 2 outer rows of barbed bristles and 1 or 2 inner rows of barbed spines which are 2-4 times as long as the bristles and about equalling the spikelet. Scales 4.

1. *C. myosuroides* (H.B.K.) Nash. Stems 6-14 dm. tall: leaf-blades 1-3 dm. long, 3-8 mm. wide: spikes 5-20 cm. long: involucre numerous: spikelets about 5 mm. long.—Pinelands and edges of hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

15. **CENCHRUS** L. Diffuse plants with terminal spikes. Spikelets 2-6, in an involucre of two thick hard valves. Scales 4, awnless.—SAND-BUR. SAND-SPUR. BUR-GRASS. COCKSPUR.

Involucre awned at the base.

Involucre with short, generally reflexed, spines at the glabrous base: spikelets 2 in an involucre. 1. *C. carolinianus*.

Involucre with erect barbed bristles at the villous base: spikelets 3 or 4 in an involucre.

Spikelets 4 in an involucre: spines on the involucre not basal.

Spikelets 3 in an involucre: spines on the involucre basal.

Involucre naked at the base.

2. *C. echinatus*.

3. *C. viridis*.

4. *C. incertus*.

1. *C. carolinianus* L. Stems 2-6 dm. long, branching: leaf-blades 6-12 cm. long, 4-8 mm. wide: spikes 3-6 cm. long: involucre 6-20, the spines 3-4 mm. long: spikelets 6-7 mm. long, usually not exerted beyond the involucre.—Hammocks and pinelands, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

2. *C. echinatus* L. Stems branched: blades 1-4 dm. long, 5-15 mm. wide: spikes 4-12 cm. long: involucre 20-50, densely crowded, green to purplish, villous at the base, the spines 3-4 mm. long: spikelets 6-7 mm. long, exerted



from the involucre.—Hammocks, U. keys, L. keys, L. S. keys.—(*Ber., Bah., Cuba, Ant.*)

57 3. *C. viridis* Spreng. Similar to *C. echinatus* in habit, but brighter-green: spikes mostly 3–10 cm. long: involucres crowded, with slender basal spines, the bristles very slender.—Hammocks, U. keys.—(*Bah., Cuba, Ant.*)

52 4. *C. incertus* M. A. Curtis. Stems 3–6 dm. tall: blades 4–15 cm. long, 3–5 mm. wide: spikes 3–6 cm. long: involucres 8–20, containing 2 spikelets, pubescent, ovoid, glabrous at the base, the spines about 3 mm. long, very broad at the base, ciliate: spikelets 5 mm. long, exerted from the involucre.—Open sandy places, L. S. keys.

56 16. *STENOTAPHRUM* Trin. Creeping, much-branched plants, with terminal spikes or spike-like panicles. Spikelets 2- (rarely 1-) flowered, in 2's–4's in short spikes. Scales 4.

53 1. *S. secundatum* (Walt.) Kuntze. Stems compressed: leaf-blades rounded at the apex, usually less than 1 dm. long, 4–10 mm. wide: spikelets 3.5–5 mm. long.—Coastal sand-dunes, U. S. keys, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—SHORE-GRASS.

17. *HOMALOCENCHRUS* Miég. Grasses of wet situations. Spikelets 1-flowered. Scales 2, somewhat rigid, awnless, the first scale usually ciliate on the keel, broader than the second. Stamens 1–6.

54 1. *H. monandrus* (Sw.) Kuntze. Stems 4–6 dm. tall: leaf-blades erect, 4–15 cm. long, 2–5 mm. wide, roughish: panicle 7–13 cm. long: spikelets about 1 mm. broad, smooth and glabrous.—Low hammocks and limesinks, U. keys, L. keys.—(*Cuba, Ant.*)

59 18. *ARISTIDA* L. Tufted plants with contracted or open panicles, which are sometimes nearly racemose. Spikelets narrow. Scales 3, the outer 2 membranous, the third scale narrow, rigid, strongly convolute, often with a prominent callus at the base, the generally spreading awns glabrous to plumose.

55 1. *A. purpurascens* Poir. Stems 3–8 dm. tall: leaf-blades 5–20 cm. long: panicle 1.5–3 dm. long: spikelets 9–12 mm. long, the flowering scale 6–8 mm. long, the awns more or less spreading, especially the central one which is 1.5–2.5 cm. long, the lateral awns from two-thirds as long to nearly equalling it.—Pinelands, L. keys.—[E. K.]—(*Bah.*)—POVERTY-GRASS. WIRE-GRASS.

58 19. *MUHLENBERGIA* Schreb. Tufted or diffuse plants with terminal contracted or open panicles. Spikelets small. Scales 3 (or rarely 4), the outer 2 persistent, membranous or hyaline, from minute to almost equalling the third scale, keeled, acute, mucronate or rarely short-awned, the second occasionally 3-toothed, the third scale somewhat rigid, convolute at the apex, entire or rarely 2-toothed, obtuse, acute, mucronate to long-awned, the awn very often capillary, a fourth awned scale very rarely present.

56 1. *M. capillaris* (Lam.) Trin. Stems wiry, 5–12 dm. tall: leaf-blades long and narrow, often involute when dry, 1–3 mm. wide: panicle 1.5–4 dm. long, its branches spreading or ascending: spikelets, exclusive of the awn, 3.5–4 mm. long, lanceolate, acuminate, the empty scales usually one-half as long as the spikelet or less, commonly bearing a short awn.—Pinelands and coastal sand-dunes, U. S. keys, L. keys.—[E. K.]—(*Bah., Cuba.*)

20. *SPOROBOLUS* R. Br. Erect or diffuse plants with terminal panicles, which are contracted or open and diffuse. Spikelets small. Scales 3, mem-

branous, acute or obtuse, the first shorter than the second. Stamens 2 or 3.  
—RUSH-GRASS.

Plants without long rootstocks: spikelets 2 mm. long or less.

Panicle short, the branches usually spreading.

Blades of the larger leaves 5 cm. long or less.

Blades of the larger leaves 1 dm. long or more.

Panicle elongate, the branches erect and appressed.

Plants with long rootstocks: spikelets 2-2.5 mm. long.

1. *S. argutus*.
2. *S. domingensis*.
3. *S. angustus*.
4. *S. virginicus*.

51 1. *S. argutus* (Nees) Kunth. Stems 3 dm. tall or less: leaf-blades 2-4 mm. wide, acuminate: panicle 4-8 cm. long, its branches at first appressed, finally widely spreading: spikelets 1.5-1.8 mm. long.—Hammocks, U. keys, L. keys.—(*Bah., Cuba, Ant.*)

52 2. *S. domingensis* (Trin.) Kunth. Stems 3-5 dm. tall, erect: leaf-blades 3-5 mm. wide, long-acuminate: panicle 8-15 cm. long, its branches at first erect, finally spreading: spikelets about 2 mm. long.—Hammocks and sand-dunes, U. keys, L. keys.—(*Bah., Cuba, Ant.*)

53 3. *S. angustus* Buckl. Stems 3-12 dm. tall: leaf-blades 2-6 mm. wide, attenuate into a long slender point, the basal ones 2-3 dm. long: panicle 1-4 dm. long: spikelets 1.5-2 mm. long, crowded on the short panicle-branches: second scale oblong to ovate, about  $\frac{1}{2}$  the length of the spikelet.—Hammocks, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

54 4. *S. virginicus* (L.) Kunth. Stems 1.5-6 dm. tall: leaf-blades 2.5-20 cm. long, 4 mm. wide or less at the base, distichous, involute on the margins and at the summit: panicle 2.5-8 cm. long, 4-10 mm. wide: spikelets 2-2.5 mm. long.—Hammocks and sand-dunes, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

55 21. *AVENA* L. Annual or perennial herbs, varying in habit. Spikelets generally large, usually 2-several-flowered, rarely 1-flowered, the rachilla articulate between the fertile flowers, the lower flowers perfect, the upper ones staminate or wanting. Scales 4-several, rarely 3, the 2 outer membranous, persistent; the flowering scales 5-9-nerved, rounded on the back, the scales enclosing perfect flowers bearing a dorsal twisted geniculate awn, the upper empty ones or those infolding staminate flowers awnless.

61 1. *A. sativa* L. Annual: stems 8-15 dm. tall: leaf-blades 2.5 dm. long or less, 5-10 mm. wide or more: panicle usually 1.5-4 dm. long: empty scales 2-3 cm. long, acuminate, the flowering ones shorter, awned or awnless.—Cultivated grounds and waste places, U. keys. Nat. of the Old World.—OAT.

56 22. *SPARTINA* Schreb. Erect or decumbent plants with the spike-rachis extending beyond the spikelets. Spikelets sessile or nearly so, much crowded and imbricate. Scales 3, firm-membranous, the 2 outer keeled, the flowering scale equalling or a little longer and broader than the second scale.—MARSH-GRASS.

62 1. *S. junciformis* Engelm. & Gray. Stems rigid, often slender, 3-10 dm. tall: leaf-sheaths thick, hard, the lower ones shining; blades involute, 5 dm. long or less: panicle 1-2 dm. long, narrow, strict: spikelets about 7 mm. long.—Ham-mock and sand-dunes, U. keys, L. keys.—[E. K.]

57 23. *CAPRIOLA* Adans. Stoloniferous plants, the stems as well as the stolons often creeping. Spikelets small. Scales 3, the 2 outer persistent, thin, keeled, the flowering scale membranous, broader, its keel ciliate.

63 1. *C. Dactylon* (L.) Kuntze. Stems 1-3 dm. tall, from long creeping and branching rootstocks: leaf-blades 2.5-5 cm. long, 2-4 mm. wide: spikes 1-5 cm.



long: spikelets 2 mm. long.—Hammocks and pinelands, and cultivated grounds. Nat. of Eu.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—BERMUDA-GRASS.

30 24. **CHLORIS** Sw. Usually perennial grasses, with spicate inflorescence. Spikelets crowded, the rachilla prolonged beyond the flower. Scales usually 4, sometimes 5, or occasionally more, the 2 lower persistent, the third scale acute.

1. **C. polydactyla** (L.) Sw. Stems 5–10 dm. tall: spikes 6–25, flexuous and spreading, 5–15 cm. long: spikelets about 3 mm. long: third scale about 2.25 mm. long, the nerves pilose, the awn 3–4 mm. long: fourth scale about 1.3 mm. long, in side view obovate-elliptic, the awn 2.5–3 mm. long.—Cultivated grounds and hammocks, U. keys, L. keys.—(*Bah., Ant.*)

25. **EUSTACHYS** Desv. Erect plants with the spikes single or in pairs, or 3–many and digitate. Spikelets usually 1-flowered, sessile. Scales 4, rarely 5, the 2 lower persistent, the remaining scales firmer than the empty scales.

65 1. **E. petraea** (Sw.) Desv. Stems 3–11 dm. tall: leaf-blades 3 dm. long or less: spikes erect, 4–11 cm. long: scales 4, the second 1.5–1.75 mm. long, the awn about 0.5 mm. long: third scale about 2 mm. long, the awn short or wanting: fourth scale 1.3–1.5 mm. long.—Pinelands, hammocks, and sand-dunes, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

37 26. **ELEUSINE** Gaertn. Annual, or perennial and creeping grasses, with flat leaf-blades, and an inflorescence composed of normally several spikes arranged digitately or approximately with sometimes an additional 1 or 2 spikes below. Spikelets numerous, much crowded, imbricate, sessile, alternate in 2 rows, several-flowered, the flowers perfect, or the upper ones staminate. Scales several, obtuse or acute, flattened, keeled, thin, the 2 lower ones empty, a little shorter than the others, the remaining scales usually more obtuse, each of the lower ones enclosing a scarcely shorter compressed 2-keeled palet and a flower, the terminal scales empty.

6 1. **E. indica** (L.) Gaertn. Stems 1.5–6 dm. tall, erect or decumbent: leaf-sheaths loose, overlapping, often short and crowded at the base of the stem; blades 7–30 cm. long, 2–6 mm. wide: spikes 2–10, whorled or approximate at the summit of the stem, or sometimes with 1 or 2 distant ones, 2–8 cm. long: spikelets 3–4 mm. long, 3–6-flowered.—Cultivated grounds and waste places, L. keys. Nat. of the Old World.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—WIRE-GRASS. DOG-GRASS. YARD-GRASS. CROW-FOOT.

58 27. **DACTYLOCTENIUM** Willd. Annual grasses, with flat leaf-blades, and an inflorescence consisting of 1-sided spikes terminally arranged in pairs or digitate. Spikelets numerous, crowded, imbricate, sessile, alternate in 2 rows, several-flowered, the flowers perfect, or the upper ones staminate. Scales several, acute or mucronate-pointed, or the second one awned, thin, flattened, keeled, the 2 lower empty, the remaining scales broader, each of the lower ones enclosing a scarcely shorter compressed 2-keeled palet and a flower, the upper scales empty.

7 1. **D. aegyptium** (L.) Willd. Stems 1.5–6 dm. tall, usually decumbent and extensively creeping: leaf-sheaths loose, overlapping, often crowded; blades 1.5 dm. long or less, 2–6 mm. wide, ciliate toward the base: spikes in pairs, or 3–5 and digitate, 1–5 cm. long: spikelets 3–5-flowered.—Pinelands, cultivated and waste grounds, L. keys. Nat. of the Old World.—[E. K.]—(*Bah., Cuba, Ant.*)—EGYPTIAN-GRASS.

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28. **LEPTOCHLOA** Beauv. Often tall grasses, with flat or convolute leaf-blades, and an inflorescence consisting of very many long slender spikes arranged in a panicle, rarely approximate at the summit of the stem. Spikelets small, close, or rarely scattered, 2-several-flowered, rarely 1-flowered, flattened, sessile, alternate in 2 rows. Scales 3-several, keeled, obtuse, acute, or shortly awned, the 2 lower empty, a little unequal, usually shorter than the spikelet, or in the 1-flowered spikelets exceeding the third scale, the remaining scales more obtuse or sometimes bearing a slender awn, each of the lower enclosing a prominently 2-keeled palet and a flower, the upper empty. Stamens 3. Styles distinct. Stigmas plumose.

65 1. **L. domingensis** (Jacq.) Trin. Stems 2-10 dm. tall: leaf-blades 1-3 dm. long, 1 cm. wide or less: inflorescence 1-2 dm. long: spikes 3-10 cm. long: spikelets 2-3 mm. long: flowering scales 1.75-2.25 mm. long, acute, the lateral nerves pilose for part way above the middle, the midnerve, hispidulous above the middle.—Hammocks and cultivated grounds, U. keys, L. keys.—(*Bah., Cuba, Ant.*)

29. **PHRAGMITES** Trin. Tall erect plants with flat usually broad leaf-blades and ample terminal panicles. Spikelets 2-several-flowered, the lower flower staminate, the remainder perfect. Scales 4-several, the first much shorter than the second, the remaining scales long-acuminate.

1. **P. Phragmites** (L.) Karst. Stems 1-5 m. tall, from long rootstocks: leaf-blades 1.5-3 dm. long or more, 1-5 cm. wide, flat: panicle ample, 1.5-3 dm. long or more: spikelets crowded, the flowering scales 10-12 mm. long.—Shore hammocks and lime-sinks, U. keys.—[E. K.]—(*Bah.*)—COMMON-REED.

4 30. **MONANTHOCHLOË** Engelm. Perennial creeping or stoloniferous monoecious grasses, with short rigid convolute leaf-blades crowded at the nodes, and an inconspicuous inflorescence concealed among the leaves. Spikelets unisexual, the staminate hardly sessile and in pairs, or stipitate and single. Scales 4 or 5, the 2 outer somewhat resembling the floral leaves, membranous and sheathing at the base, linear, rigid and spreading above, many-nerved, the remaining scales membranous, firmly hyaline.

1. **M. littoralis** Engelm. Branches densely tufted from creeping stems, 1-5 dm. tall, stiff, wiry: leaf-blades crowded on short branches, widely spreading, 1.5 cm. long or less, stiff, often curved.—Hammocks, sand-dunes and shores, U. keys, L. keys, L. S. keys.—(*Cuba.*)

5 31. **TRIDENS** R. & S. Usually perennial grasses, with the inflorescence of open or contracted panicles. Spikelets 3-many-flowered. Scales 5-many: flowering scales 3-nerved, the midnerve or all the nerves excurrent, the midnerve and the lateral nerves or the margins pilose.

71 1. **T. eragrostoides** (Vasey & Scribn.) Nash. Stems 3-12 dm. tall: leaf-blades 2-3 dm. long, 4-7 mm. wide: panicle 1.5-3 dm. long, its rough branches ascending, 3-12 cm. long: spikelets 7-10-flowered, 2.5 mm. broad, ovate: flowering scales about 2.5 mm. long, oval and about 1.5 mm. wide when spread out, the apex rounded or nearly truncate, denticulate, the midnerve usually excurrent.—Hammocks and lime-sinks, Key West.

3 32. **DIPLACHNE** Beauv. Tufted often tall grasses, with an inflorescence of numerous long slender spikes or racemes (rarely reduced to one and terminal), racemously arranged on a long axis. Spikelets linear, sessile or nearly so, many-flowered. Scales many, membranous.

Flowering scales entire or acutely 2-toothed at the apex, usually awned or awn-tipped.

Flowering scales with 2 broad rounded teeth, usually awnless.

1. *D. fascicularis*.

2. *D. dubia*.

72 1. ***D. fascicularis*** (Lam.) Beauv. Stems 3-8 dm. tall: leaf-blades 1-2 dm. long, 3 mm. wide or less: inflorescence usually partially included at the base, its 8 or more racemes erect or erect-ascending, the larger ones 4-8 cm. long: scales 10-12, the flowering scales 3-4 mm. long, the nerves pilose below the middle.—Hammocks and cultivated grounds, L. keys.—(*Bah., Cuba, Ant.*)

13 2. ***D. dubia*** (H.B.K.) Benth. Stems 3-10 dm. tall: leaf-blades 2-8 mm. wide: inflorescence usually finally exserted, 1-2 dm. long, the 5-20 racemes erect to spreading: spikelets 5-9 mm. long: scales 5-10, the flowering scales about 4.5 mm. long, oblong, the lateral nerves vanishing considerably below the apex of the lobes, the midnerve at the cleft or rarely extending into a short awn, the margin of the scale pilose below the middle.—Hammocks and cultivated grounds, U. keys, L. keys.

✓ 33. **ERAGROSTIS** Beauv. Erect or diffuse plants, the stems sometimes prostrate or creeping, with open or contracted panicles. Spikelets numerous, arranged singly or in fascicles, 2-many-flowered, the flowers perfect or unisexual. Scales 4-many, membranous, compressed, keeled, the flowering scales 3-nerved, obtuse or acute at the apex: palet often incurved and persistent on the rachilla after the fall of the scale.

Palet of the spikelets glabrous on the keels or merely hispidulous: plants perennial.

Palet of the spikelets conspicuously and beautifully ciliate: plants annual.

1. *E. Elliottii*.

Panicle contracted, spike-like, the branches short and appressed.

2. *E. ciliaris*.

Panicle open, its branches spreading.

3. *E. plumosa*.

74 1. ***E. Elliottii*** S. Wats. Stems firm, 4-10 dm. tall: leaf-blades 4 dm. long or less, 3-5 mm. wide: panicle diffuse, 2-5 dm. long, its long slender branches finally widely spreading or ascending; spikelets 6-13-flowered, 5-10 mm. long, the flowering scales 1.75-2 mm. long.—Pinelands, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

2. ***E. ciliaris*** (L.) Link. Stems 1.5-4 dm. tall: leaf-sheaths usually ciliate on the margin and with a tuft of long hairs at the apex; blades 2-8 cm. long: panicle often interrupted below, 3-10 cm. long: spikelets 6-16-flowered, the hairs of the palet exceeding 0.5 mm. long.—Hammocks and cultivated grounds, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

76 3. ***E. plumosa*** Link. Stems 1-4 dm. tall: leaf-sheaths usually ciliate on the margin and with a tuft of hairs at the apex; blades 2-10 cm. long: panicle oblong, 4-16 cm. long: spikelets 4-8-flowered, the nerves of the palet ciliate with hairs about 0.2 mm. long.—Hammocks and cultivated grounds, U. keys, L. keys.—[E. K.]—(*Bah., Cuba.*)

34. **UNIOLA** L. Erect or reclining plants with contracted or open panicles. Spikelets laterally compressed, 2-edged, 3-many-flowered. Scales 6-many, compressed-keeled, sometimes winged, the flowering scales many-nerved.

77 1. ***U. paniculata*** L. Stems 1-2.5 m. tall: leaf-blades 3 dm. long or more: panicle 2-3 dm. long or more: spikelets many-flowered, ovate to oval, 12-25 mm. long, the flowering scales 8-10 mm. long.—Coastal sand-dunes, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba.*)—SEA-OATS.

35. **DISTICHLIS** Raf. Tufted, dioecious plants with rigid creeping or decumbent stems concealed by the overlapping sheaths, and contracted panicles.

Spikelets many-flowered, unisexual, more numerous in the staminate than in the pistillate panicles, the rachilla articulate in the pistillate spikelets. Scales many, acute, the flowering scales long and broad, firm, membranous, or nearly coriaceous.

- 78 1. *D. spicata* (L.) Greene. Stems 1-6 dm. long: leaf-blades 2-4 mm. wide: panicle 2-6 cm. long: spikelets 8-18 mm. long, 6-16-flowered, pale-green, the flowering scales 3-5 mm. long, acute or acuminate.—Coastal sand-dunes and hammocks, U. S. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—SPIKE-GRASS.

## FAMILY 2. CYPERACEAE. SEDGE FAMILY.

Grass-like or rush-like caulescent or scapose herbs, often with root-stocks. Stems or scapes solid, or rarely hollow, often 3-sided or 3-angled. Leaves with closed sheaths: blades narrow. Flowers perfect or imperfect, in spikelets, one (rarely 2), in the axil of each scale (glume, bract), the spikelets clustered or solitary, 1-many-flowered. Scales 2-ranked or spirally imbricate. Perianth of bristles, or scale-like parts, or wanting. Androecium of 1-3 stamens, or rarely more. Gynoecium of 2 or 3 united carpels. Fruit an achene.

Spikelets perfect, or mainly so, rarely 2 scales and 1 flower.

Scales of the spikelets 2-ranked: spikelets several or many together in each spike.

Scales of the spikelets spirally imbricate all around, or 2-ranked in *Abildgaardia* in which each scape is terminated by one spikelet.

Perianth present.

Perianth wanting.

Achene not surmounted by a tubercle.

Spikelets terete, the scales spirally imbricate.

Spikelets flattened, the scales 2-ranked.

Achene surmounted by a tubercle.

Spikelets in umbels or cymes, without an imbricate involucre.

Spikelets in a head subtended by an imbricate involucre.

Spikelets polygamous, or rarely of 4 scales and only 1-flowered.

Scales of the spikelet 2-ranked.

Scales of the spikelets spirally imbricate.

Stigmas 3: style deciduous.

Inflorescence paniculate.

Inflorescence capitate.

Stigmas 2: style persistent.

1. *CYPERUS*.

2. *ELEOCHARIS*.

3. *FIMBRISTYLIS*.

4. *ABILDGAARDIA*.

5. *STENOPHYLLUS*.

6. *DICHROMENA*.

7. *SCHOENUS*.

8. *MARISCUS*.

9. *REMIREA*.

10. *RYNCHOSPORA*.

1. *CYPERUS* [Tourn.] L. Scapose herbs. Leaves basal: blades narrow. Scapes, in our species, simple, triangular, and with one or more bracts at the summit forming an involucre to the umbellate or capitate inflorescence. Rays of the umbel sheathed at the base, usually very unequal, one or more of the heads or spikes commonly sessile. Spikelets flat or nearly terete. Perianth none. Achene not tubercled.—*GALINGALE*.

Style-branches or stigmas 2: achene lenticular.

Style-branches or stigmas 3: achene trigonous.

Rachis of the flattened spikelets persistent, the scales falling away.

Wings of the rachis none or very narrow.

Leaves not viscid: achenes about as wide as long, about  $\frac{1}{3}$  as long as the scale, beakless.

Leaves viscid: achenes much longer than wide, about  $\frac{1}{2}$  as long as the scale, beaked.

Wings of the rachis manifest.

Rachis of the spikelets deciduous.

1. *C. paniculatus*.

2. *C. compressus*.

3. *C. elegans*.

4. *C. esculentus*.



Rachis breaking up into 1-fruited joints: spikelets nearly terete.

Spikes solitary: scapes filiform, reclining: plants perennial.

Spikes umbellate: scapes stout, erect: plants annual.

Rachis deciduous above the lower pair of scales.

Achenes narrowly linear-oblong,  $2\frac{1}{2}$ -4 times as long as thick.

Achenes 2 mm. long, fully  $\frac{3}{4}$  as long as the scale.

Achenes 1.5 mm. long, less than  $\frac{2}{3}$  as long as the scale.

Achenes oblong to obovoid, not more than twice as long as thick.

Spikelets with 1-4 achenes.

Umbel simple or head solitary: leaf-blades relatively narrow.

Heads dark-brown: scales mucronulate.

Heads green or greenish-brown: scales not mucronulate.

Umbel compound: leaf-blades relatively broad.

Spikelets with 5-10 achenes.

5. *C. floridanus*.

6. *C. ferax*.

7. *C. Martindalei*.

8. *C. litorcus*.

9. *C. fuliginus*.

10. *C. Blodgettii*.

11. *C. ligularis*.

12. *C. brunneus*.

89 1. *C. paniculatus* Rottb. Annual, 1-4 dm. tall: leaves often 3-6; blades 1-4 mm. wide, or sometimes narrower or even filiform, not firm: umbel with 3-8 rays 1-5 cm. long, or rarely nearly capitate: spikelets few, linear or linear-lanceolate, 6-15 mm. long, acute: scales light chestnut-brown, oblong-lanceolate, 2-2.5 mm. long: achenes oblong, fully 1 mm. long, grayish, abruptly apiculate, fully  $\frac{1}{2}$  as long as the scale.—Low hammocks and sandy places, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

80 2. *C. compressus* L. Annual, with scapes 7-25 cm. long: leaves light-green; blades about 2 mm. wide: scapes smooth: umbel capitate or with 2-3 short rays: spikelets narrowly lanceolate, acute, 8-20 mm. long, 3-4 mm. wide, very flat, many-flowered: scales light-green with a yellow band on each side, ovate, acuminate: achenes obovoid, obtuse, dull-brown, about  $\frac{1}{2}$  as long as the scale.—Open hammocks and sandy places, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

81 3. *C. elegans* L. Perennial, pale-green: leaves several at the base of the scape, viscid; blades mostly 2-4 mm. broad, involute above the loose, striate sheaths: scapes tufted, 2-7 dm. tall: umbel simple or compound, usually of 3-6 rays: spikelets linear-oblong, 6-12 mm. long, crowded: scales light tan-colored, rhombic-ovate, 3 mm. long, scabrous on the back, with more or less spreading short awn-like tips: achenes obovoid, fully 1.5 mm. long including the subulate beak.—Hammocks and open sandy places, Key West.—(*Bah., Cuba, Ant.*)

82 4. *C. esculentus* L. Perennial by scaly tuber-bearing rootstocks: leaves light-green; blades 4-8 mm. wide, the midvein prominent: scapes usually stout, 3-8 dm. tall, commonly shorter than the leaves: umbel 4-10-rayed, often compound: spikelets numerous in loose spikes, straw-color or yellowish-brown, flat, spreading, 1-2.5 cm. long, about 3 mm. wide, many-flowered: scales ovate-oblong, rather acute, 3-5-nerved: rachis narrowly winged: achenes obovoid, fully 1 mm. long, obtuse.—Waste places and cultivated grounds, Key West.—(*Ber., Cuba, Ant.*)

83 5. *C. floridanus* Britton. Perennial, bright-green: leaves mostly reduced to a few basal scales and several filiform blades: scapes tufted, erect or reclining, 1-7 dm. long, filiform or wiry: umbel capitate, sessile: spikelets linear-subulate, 6-10 mm. long, crowded, chestnut-brown, scales broadly oblong, fully 2 mm. long, blunt, closely imbricate, ribbed on the back, very firm: achenes oblong or nearly so, about 1.5 mm. long, dark-brown, dull.—Open hammocks and sandy places, Key West.—(*Bah., Cuba, Ant.*)

84 6. *C. ferax* Vahl. Annual, 1-4 dm. tall: leaf-blades smooth-margined: umbel often compact, the rays mostly short: spikes yellowish or grayish-brown:

spikelets linear, subterete, 10–20-flowered, 16–25 mm. long, about 2 mm. thick: scales ovate-oblong, appressed, imbricate, obtuse, rather firm, green and 7–9-nerved on the back, yellowish on the sides: rachis broadly winged: achenes narrowly obovoid, obtuse, about 1–1.5 mm. long.—Hammocks, U. keys, L. keys.—(*Ber., Bah., Cuba, Ant.*)

7. *C. Martindalei* Britton. Perennial, 2–7 dm. tall: leaves overtopped by the scape; blades filiform by the revolute margins, smooth: umbel capitate, or with 1–3 slender rays: spikes globular, 1–2 cm. in diameter: spikelets linear or linear-subulate, 6–10 mm. long, yellowish-green, densely crowded: scales broadly oblong, 2–2.5 mm. long, prominently ribbed: achenes oblong, 2 mm. long or nearly so, brown, dull.—Sandy places, Key West.—[E. K.]

8. *C. litoreus* (Clarke) Britton. Perennial, light-green: leaves overtopped by the scape; blades narrowly linear, glabrous: scapes sparingly tufted, 5 dm. tall or less, smooth: bracts of the involucre usually 5, about as wide as the leaves: umbel simple, with about 5 slender unequal rays: spikes subglobose, 1–2 cm. in diameter: spikelets narrowly linear, 9–12 mm. long, greenish, rather lax: scales ovate or oblong-ovate, 2–2.5 mm. long, ribbed, mucronate, lax: achenes linear-oblong, 1.5 mm. long, pale-brown.—Hammocks, Long Key.

9. *C. fuliginosus* Chapm. Perennial, 1–4 dm. tall: leaves overtopped by the scape; sheaths blackish; blades revolute, about as slender as the scape, smooth: spikelets crowded in a head about 1 cm. in diameter, linear-oblong, 4–7 mm. long, dark-brown, 8–12-flowered, often apparently lateral: scales oval or ovate, barely 2 mm. long, mucronulate, several-ribbed: achenes oblong-obovoid, barely 1.5 mm. long, dark-brown, dull.—Hammocks and sandy places, Key West.—(*Bah., Cuba, Curaçao.*)

10. *C. Blodgettii* Torr. Perennial, 1–3 dm. tall: leaves overtopped by the scapes; blades 2–4 mm. wide, smooth: umbel capitate or with one to three short rays: spikes 10–15 mm. in diameter: spikelets 20–40, oblong or linear-oblong, 6–8 mm. long, densely crowded, 1–10-flowered: scales oval to ovate, less than 2 mm. long, mostly 9-nerved, rather obtuse: achenes oblong, about 1 mm. long, brown, dull.—Hammocks and sandy places, Key West.

11. *C. ligularis* L. Perennial, 5–12 dm. tall: leaves sometimes overtopping the scape; sheath colored at the base; blades 6–20 mm. broad, serrulate, somewhat revolute: umbel compound, of 6–many short rays, often rather dense, or the rays rarely elongate: spikes cylindric or oblong, 1–2 cm. long: spikelets 4–6 mm. long, gray to brown, densely crowded, spreading: scales oval, 2.5–3 mm. long, blunt, closely imbricate, delicately ribbed: achenes elliptic or slightly broadest above the middle, 1.5 mm. long, dark-brown, dull.—Hammocks and sand-dunes, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

12. *C. brunneus* Sw. Perennial, 3–7 dm. tall: leaves overtopped by the scape; blades 2–7 mm. wide, smooth, sometimes involute: umbel compound, capitate, or 3–5 of the rays becoming 1–7 cm. long: spikelets linear or linear-lanceolate, 10–15 mm. long, chestnut-colored, densely crowded: scales oval or ovate-oval, nearly 3 mm. long, often apiculate, conspicuously ribbed: achenes elliptic-obovoid, fully 1.5 mm. long, dark-brown. [*C. Ottonis* Boeckl.]—Coastal sand-dunes and hammocks, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

2. **ELEOCHARIS** R. Br. Scapose herbs. Leaves reduced to sheaths or the lowest very rarely blade-bearing. Scapes simple. Spikelets solitary, terminal, erect, several-many-flowered, not involucre or rarely with 2 small subtending bracts. Scales spiral. Perianth of 1–12 bristles, usually retrorsely barbed, or wanting. Base of the style persistent on the achene as a tubercle.—SPIKE-RUSH.



Spikelet scarcely, if at all, thicker than the scape; scales leathery.

Spikelet manifestly thicker than the scape; scales mostly membranous.

Upper sheath scarious, hyaline: plants perennial.

Upper sheath 1-toothed, not scarious: plants annual.

Perianth-bristles 2-4, pale: achenes 0.5 mm. long: scapes slender.

Perianth-bristles 5-8, brown: achenes 1 mm. long: scapes almost filiform.

1. *E. cellulosa*.

2. *E. flaccida*.

3. *E. atropurpurea*.

4. *E. capitata*.

91 1. *E. cellulosa* Torr. Perennial. Scapes obscurely 3-angled and invested by discolored sheaths at the base, terete above, 3-7 dm. tall: spikelet cylindric, 1.5-3 cm. long: scales with white hyaline margins: achene-body broadly obovoid, copiously pitted, 1.5-2 mm. long, about as long as the bristles; tubercle deltoid, about  $\frac{1}{2}$  as broad as the widest part of the achene.—Low hammocks and lime-sinks, L. keys.—[E. K.]—(*Ber., Bah., Cuba.*)

92 2. *E. flaccida* (Spreng.) Urban. Scapes very slender, pale-green, 0.5-2.5 dm. tall: upper sheath with a white, hyaline, scarious limb: spikelet subacute, 2-3 times as thick as the scape, about 4 mm. long: scales pale-green, hyaline, each with a faint midvein: perianth-bristles about 6, slender, retrorsely barbed, somewhat longer than the achene: achene-body 0.7-1 mm. long, lenticular, obovoid, smooth, brown; tubercle conic, acute. [*E. ochreate* (Nees) Steud.]—Coastal sand-dunes and open hammocks, U. S. keys, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

93 3. *E. atropurpurea* (Retz.) Kunth. Scapes tufted, slender, 2-9 cm. tall: upper sheath 1-toothed: spikelet ovoid, many-flowered, subacute, 3-4 mm. long, 2 mm. in diameter, or less: scales ovate-oblong, persistent, purple-brown except the midvein and very narrow scarious margins: perianth-bristles 2-4, fragile, pale, minutely downwardly hispid, about as long as the achene: achene-body obovoid, jet-black, shining, 0.5 mm. long; tubercle conic, depressed, constricted at the base.—Open sandy hammocks, L. keys.—(*Bah., Cuba, Ant.*)

94 4. *E. capitata* (L.) R. Br. Scapes tufted, almost filiform, 0.5-2.5 dm. tall: upper sheath 1-toothed: spikelet ovoid, obtuse, much thicker than the scape, 3-5 mm. long: scales brown except the greenish midvein, narrowly scarious-margined: perianth-bristles 5-8, slender, downwardly hispid, as long as the achene: achene-body obovoid, jet-black, smooth, shining, 1 mm. long; tubercle depressed, apiculate.—Sandy places and open hammocks, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

49 3. **FIMBRISTYLIS** Vahl. Scapose herbs. Spikelets umbellate or capitate, terete, several-many-flowered, the scales spiral, all fertile, deciduous. Involucre with 1-many bracts. Perianth none. Style with an enlarged base, but falling away from the top of the achene.

Achenes cancellate in many rows: style short-clilate.

Achenes longitudinally ribbed and reticulate: style long-clilate.

1. *F. castanea*.

2. *F. Harperi*.

95 1. *F. castanea* (Michx.) Vahl. Plants without scaly rootstocks: leaves few; blades involute, less than 2 mm. wide: scapes 2-5 dm. tall: spikelets oblong, 6-10 mm. long: achenes obovoid or oblong, 1.5 mm. long.—Hammocks and pinelands, U. keys, L. keys.—[E. K.]—(*Ber., Bah.*)

96 2. *F. Harperi* Britton. Plants with scaly rootstocks: leaves rather numerous; blades flat or involute, mostly 2-3 mm. wide: scapes 3-6 dm. tall: spikelets cylindric in age, 8-14 mm. long: achenes obovoid or oblong-obovoid, about 1.5 mm. long.—Coastal sand-dunes and open hammocks.—U. S. keys, U. keys, L. keys.—[E. K.]

97 4. **ABILDGAARDIA** Vahl. Acaulescent herbs. Leaf-blades narrow, commonly involute. Scapes tufted, jointless, simple. Involucre of a single

small bract. Spikelets solitary or several in terminal umbels or clusters, pale: scales imbricate in 2 rows, or in 3 rows by the twisting of the rachis, deciduous. Perianth wanting. Style pubescent, with a swollen base, deciduous. Achenes 3-angled, warty.

- 97 1. *A. monostachya* (L.) Vahl. Leaf-blades nearly filiform above the discolored bases, slightly involute, sharp-pointed: scapes tufted, very slender or filiform, 1-4 dm. tall, erect, smooth: bracts of the involucre much shorter than the spikelets, inconspicuous: spikelet solitary or sometimes 2 together, flattened, ovoid or conic, 1-1.5 cm. long, pale: achenes slightly pear-shaped, 2-2.5 mm. long, yellowish-white, often apiculate.—Pinelands and open hammocks, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

5. *STENOPHYLLUS* Raf. Scapose tufted herbs. Leaves basal: blades narrowly linear, filiform or setaceous, the sheaths ciliate or pubescent. Spikelets umbellate, capitate, or solitary, the scales spiral, mostly deciduous. Involucre of 1-several bracts. Flowers perfect. Perianth none. Style glabrous, the base much swollen and persistent as a tubercle on the achene.

- 98 1. *S. ciliatifolius* (Ell.) C. Mohr. Leaves erect; blades bristle-like or linear-filiform, channeled, serrulate-ciliate: scapes tufted, very slender, 10-30 cm. tall, often slightly scabrous near the top: bracts of the involucre 2-3, similar to the leaves but shorter, one about as long as the umbel, the others very short: spikelets numerous in a terminal compound umbel, linear-oblong, 2-4 mm. long, acute, 6-12-flowered: scales broad, brown-margined, keeled, abruptly pointed, often ciliate toward the apex: achenes 3-angled, obovoid, less than 1 mm. long, bluish, minutely papillose.—Low sandy places and open hammocks, L. keys.

6. *DICHROMENA* Michx. Caulescent herbs with the spikelets crowded in a terminal head involucre by several bracts, which are often white at the base. Spikelets compressed, several-many-flowered. Scales spirally imbricate all around, several of them with imperfect flowers, or empty. Perianth none. Style subulate. Achene lenticular, transversely rugose, crowned with the broad persistent base of the style (tubercle).—WHITE-TOP.

- 99 1. *D. colorata* (L.) A. Hitchc. Stem slender, rather sharply triangular, 3-6 dm. tall: leaf-blades narrowly linear, much shorter than the stem: bracts of the involucre reflexed when mature, yellowish-white at the base: head globose, 1-2 cm. in diameter: spikelets narrowly oblong, acute: scales membranous, lanceolate, nearly white, subacute: achene-body obovoid, a little over 1 mm. long, pale-brown, compressed.—Low pinelands and open sandy places, L. keys.—(*Ber., Bah., Cuba, Ant.*)

7. *SCHOENUS* L. Acaulescent rush-like herbs. Leaf-sheaths dark-colored: blades resembling the scapes, half-terete. Spikes in a terminal cluster, 1-8-flowered, subtended by an involucre of 1-2 bracts. Spikelets crowded, often dark-colored: scales imbricate in 2 rows, persistent. Perianth of 3-6 scabrous or plumose bristles. Styles barely enlarged at the base, almost wholly deciduous. Achene 3-angled, smooth.

- 100 1. *S. nigricans* L. Leaf-sheaths dark-brown or almost black at the base; blades erect, rigid, pungent: scapes tufted, 2-6 dm. tall: bracts of the involucre 2, the lower one surpassing the inflorescence: head about 1 cm. long, dark chestnut-colored: spikelets flattened, 6-8-flowered, narrowed upward: perianth-bristles 6, unequal, somewhat plumose: achenes oval, white and polished, about 2 mm. long.—Low pinelands, Big Pine Key.—[E. K.]—(*Bah., Cuba.*)

8. **MARISCUS** [Hall.] Zinn. Caulescent, often large, herbs. Leaves with rough margins. Spikelets oblong to fusiform, few-flowered, variously clustered. Scales spiral, the lower empty, the middle ones mostly subtending imperfect flowers, the upper with fertile flowers. Perianth none. Style deciduous. Achene ovoid or globose, smooth or longitudinally striate, without a tubercle. [*Cladium* P. Br.]

10/ 1. **M. jamaicense** (Crantz) Britton. Stems 1.5–3 m. high: leaf-blades very glabrous, 6–20 mm. wide, the margins spinulose-serrulate: umbels several or numerous, decompound, forming a large panicle: spikelets mostly 2–5 together at the ends of the raylets, narrowly ovoid, acute, 4–5 mm. long: achene ovoid, wrinkled, 2 mm. long.—Lime-sinks, low pinelands and hammocks, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—SAW-GRASS.

9. **REMIREA** Aubl. Caulescent herbs. Leaves imbricate: blades narrow, rigid. Involucre with numerous bracts, the outer spreading. Flowers perfect. Spikelets numerous, capitate, 1-flowered. Scales about 4, imbricate. Perianth wanting. Style barely enlarged below, the base continuous with the ovary. Achenes 3-angled, tightly enclosed in the inner scales.—TUFT-GRASS.

10/ 1. **R. maritima** Aubl. Stems 0.5–3 dm. tall, densely leafy, simple: leaves numerous; blades linear or linear-lanceolate, 2–10 cm. long, attenuate, slightly involute, smooth: bracts of the involucre resembling the leaves: spike 1–1.5 cm. long, ovoid, sometimes compound: spikelets 3–5 mm. long: achenes narrowly oblong, 2.5–3 mm. long, often curved, apiculate, rather granular.—Coastal sand-dunes and open hammocks, U. S. keys, U. keys.—(*Ant.*)

10. **RYNCHOSPORA** Vahl. Caulescent herbs. Leaves not imbricate: blades narrow, flat, or involute. Spikelets not capitate, ovoid, oblong, or fusiform. Scales thin, 1-nerved, imbricate, usually mucronate by the excurrent midvein. Upper flowers imperfect, the lower perfect. Perianth of 1–24 (mostly 6) upwardly or downwardly barbed or scabrous bristles, or wanting. Achene lenticular or swollen, not 3-angled, smooth, cancellate or transversely wrinkled, capped with the persistent tubercle.—BEAK-RUSH.

Perianth-bristles wanting: achenes less than 1 mm. long: leaf-blades filiform.

1. *R. divergens*.

Perianth-bristles longer than the achene: achenes over 1 mm.

long: leaf-blades 4–10 mm. wide.

2. *R. caduca*.

10/ 1. **R. divergens** M. A. Curtis. Stems densely tufted, filiform or wiry, 1–4 dm. tall: leaf-blades very slender: spikelets elliptic to ovoid-elliptic, 3–3.5 mm. long, acute, in loose or rarely somewhat contracted corymbs: perianth-bristles wanting: achene-body plump-lenticular, orbicular-obovoid, pale, 0.5–0.8 mm. long, reticulate, pinched at the base; tubercle depressed, sessile.—Low pine-lands, Big Pine Key.—[E. K.]—(*Bah., Cuba.*)

10/ 2. **R. caduca** Ell. Stems often loosely tufted, 8–15 dm. tall: leaf-blades 4–10 mm. wide: spikelets ovoid, about 4 mm. long, numerous in 4–6 compound corymbs: achene-body lenticular, orbicular-obovoid, about 1.5 mm. long, finely transversely wrinkled; tubercle conic exceeded by the perianth-bristles.—Coastal sand-dunes, U. S. keys.—[E. K.]

### Order ARECALES.

Shrubs or trees, with a single terminal bud. Leaves at the end of the stem: blades plaited, pinnate or flabellate. Flowers perfect, polygamous,

or dioecious, on axillary compound spadices. Perianth of 6 fleshy members in 2 series. Androecium of 6, or 9-12 stamens. Gynoecium of 3 distinct or united carpels. Fruit drupaceous or baccate. Seeds usually hollow.

### FAMILY 1. ARECACEAE. PALM FAMILY.

Stem with a terminal crown of leaves, or in the case of climbing plants with remote leaves. Inflorescence at first included in a large bract (spathe), from which it ultimately protrudes.

Leaves with flabellately parted or cleft blades, fan-shaped.

Calyx and corolla united into a 6-lobed or truncate cup, or obsolete.

Endosperm channeled: drupe with black flesh.

1. COCCOTHRINAX.

Endosperm even: drupe with white flesh.

2. THRINAX.

Calyx and corolla distinct and manifestly in 2 series.

Style or stigma basal on the drupe.

3. SABAL.

Style or stigma terminal on the drupe.

4. SERENOA.

Leaves with pinnately divided blades, pinnate.

Drupe with the style or stigmas nearly basal: stamens exserted.

Drupe violet-blue: branches of the spadix erect or ascending.

5. ROYSTONEA.

Drupe orange-scarlet: branches of the spadix spreading.

6. PSEUDOPHOENIX.

Drupe with the style or stigmas terminal: stamens included.

7. COCOS.

**1. COCCOTHRINAX** Sarg. Unarmed shrubs or trees. Leaf-blades flabellate silvery or pale-scurfy beneath: petioles smooth. Spadix relatively short. Stamens mostly 9: filaments distinct or nearly so. Style funnelliform. Drupe black or purple-black.

**1. C. argentea** (Lodd.) Sarg. A tree becoming 8 m. tall: leaf-blades 5-8 dm. broad, the ligule 2-3 cm. broad: spadix 5-7.5 dm. long: drupe 12-18 mm. thick.—Pinelands, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—SILVER-PALM.

**2. THRINAX** L. Unarmed trees. Leaves with flabellate blades pale or silvery-scurfy beneath, and smooth petioles. Spadix relatively long. Stamens mostly 6: filaments united at the base. Style concave or flat. Drupe ivory-white. — Spr. — THATCH-PALM.

The wood of the THATCH-PALMS is brown, hard without and soft within.

Flowers slender-pedicelled: sepals and petals united into an obscurely lobed or truncate cup: filaments subulate: stigma oblique.

1. *T. floridana*.

Flowers on short disk-like pedicels: sepals and petals partially united, acute: filaments nearly triangular: stigma not oblique.

Trunk without a basal enlargement: spadix 3-6 dm. long: drupe 3-4 mm. in diameter.

2. *T. microcarpa*.

Trunk with a basal enlargement: spadix nearly 2 m. long: drupe 5-6 mm. in diameter.

3. *T. keyensis*.

**1. T. floridana** Sarg. Slender tree, 9 m. tall. Leaf-blades 9-13 dm. broad, yellowish-green and lustrous above: ligule 5-7 cm. broad: spadix about 10 dm. long: pedicels about 3 mm. long: filaments subulate: drupe 8-12 mm. thick, or rarely smaller.—Hammocks and sandy shores, U. keys.—(*Bah., Cuba.*)—FLORIDA THATCH-PALM.

**2. T. microcarpa** Sarg. Stout tree 10 m. tall. Leaf-blades about 10 dm. broad, pale-green above: ligule 2-2.5 cm. broad: spadix 3-6 dm. long: pedicels disk-like: filaments triangular: drupe 3-4 mm. thick.—Hammocks and sandy shores, U. keys, L. keys, L. S. keys.—(*Bah., Cuba.*)—BRITTLE-THATCH.

**3. T. keyensis** Sarg. Relatively stout tree 8 m. tall, the trunk raised on a base of matted roots. Leaf-blades about 10 dm. broad, yellowish-green above:



ligule about 2.5 cm. wide; spadix nearly 20 dm. long; pedicels disk-like; drupe 5-6 mm. thick.—Sandy shores and hammocks, L. keys. (*Bah.*)—KEY-THATCH.

57 **3. SABAL** Adans. Unarmed shrubs with horizontal or contorted root-stocks, or trees. Leaf-blades flabellate, glabrous. Spadix elongate. Seed spheroidal.—PALMETTO.

104 **1. S. Palmetto** (Walt.) R & S. Stem 28 m. tall. Leaf-blades cordate at the base; ligules about 10 cm. long; spadix spreading or drooping; anthers about 1.5 mm. long; seeds 5-7 mm. wide.—Hammocks and palm-lands, U. S. keys, L. keys.—[E. K.]—(*Bah., Cuba.*)—CABBAGE-PALMETTO. CABBAGE-TREE.

**4. SERENOA** Hook. Armed shrubs or trees. Leaf-blades flabellate, cordate at the base; petioles with recurved spines. Stamens unequal, those opposite the petals with broad filaments, those alternate with petals with narrow filaments. Drupe and seed oblong.

110 **1. S. serrulata** (Michx.) Hook. Rootstock elongate; stem horizontal or sometimes erect, becoming 2-7 m. tall; leaf-blades suborbicular, green or glaucous, 3-8 dm. broad, cordate at the base; petioles with firm spines; petals 4-4.5 mm. long; drupes 15-25 mm. long.—Lime-sinks in pinelands and sand-dunes, U. S. keys, L. keys.—[E. K.]—SAW-PALMETTO.

**5. ROYSTONEA** O. F. Cook. Unarmed trees. Leaf-blades pinnate; petiole nearly terete above, the sheathing bases very long. Spadix pendulous. Petals valvate. Seeds reniform.

111 **1. R. regia** (H.B.K.) O. F. Cook. A stately tree 30 m. tall, the trunk fusiform; leaf-blades 2.5-3.5 m. long, the larger segments 7-9 dm. long; perianth of the staminate flowers 6-7 mm. long, that of the pistillate barely  $\frac{1}{2}$  as large; drupes 12-14 mm. long, violet-blue.—Hammocks and open places, Marquesas Keys, perhaps introduced.—[E. K.]—(*Cuba, Ant.*)—ROYAL-PALM.

**6. PSEUDOPHOENIX** H. Wendl. Unarmed trees. Leaves spreading; blades pinnate; petioles concave throughout. Spadix spreading during anthesis. Calyx minute. Petals broad, concave, spreading or reflexed. Seeds globular.

112 **1. P. Sargentii** H. Wendl. A tree 8 m. tall, the trunk often slightly fusiform; leaf-blades 1-1.5 m. long, the larger segments 4-4.5 dm. long; perianth persistent; sepals apiculate; petals oval or oblong, 4-6 mm. long, yellowish-green; drupe globular, or 2-3-lobed, 11-14 mm. long, orange-scarlet.—Hammocks, Elliott's Key and Long Key.—(*Bah., Cuba, Ant.*)—HOG CABBAGE-PALM. SARGENT'S-PALM.

**7. COCOS** L. Unarmed trees. Leaf-blades pinnate; petioles rounded on the back, the sheathing bases short. Spadix ultimately drooping. Sepals and petals of the staminate flowers valvate, those of the pistillate flowers imbricate. Drupe 3-angled, with a fibrous pericarp and a bony endocarp.

113 **1. C. nucifera** L. A stately tree 30 m. tall; leaf-blades 3-5 m. long, the numerous segments 5-7 dm. long; perianth of the staminate flowers fully 1 cm. long, that of the pistillate larger; drupes oval or ovoid, 2-3 dm. long; endosperm enclosing a milky juice.—Coastal sand-dunes and hammocks, U. S. keys, U. keys, L. keys, L. S. keys. Introduced.—[E. K.]—(*Bah., Cuba, Ant.*)—COCOANUT. COCO-PALM.

## Order XYRIDALES.

Terrestrial, commonly bog, herbs, or epiphytes in BROMELIACEAE. Leaves often basal: blades prevailingly narrow. Inflorescence usually not a spadix, but often with a spathe-like bract or a spathe. Flowers mostly complete. Corolla regular or nearly so (except in some genera of COMMELINACEAE, PONTEDERIACEAE and BROMELIACEAE). Gynoecium compound, superior or rarely inferior. Fruit a capsule or utricle, or baccate.

Ovary 1-celled, with parietal placentae: inflorescence without a spathe.

Ovary 2-3-celled, if incompletely so or if nearly 1-celled then the flowers in a spathe. Fam. 1. XYRIDACEAE.

Flowers minute, monoecious or dioecious, in dense heads each seated in an imbricated involucre.

Fam. 2. ERIOCAULACEAE.

Flowers conspicuous or relatively so, perfect.

Terrestrial or aquatic plants: foliage not scurfy: stigmas united.

Calyx and corolla free, of very different members: stamens free.

Fam. 3. COMMELINACEAE.

Calyx and corolla of quite similar members and partially united: stamens partially adnate to the perianth.

Fam. 4. PONTEDERIACEAE.

Epiphytes (our species), with scurfy foliage: stigmas 3.

Fam. 5. BROMELIACEAE.

## FAMILY 1. XYRIDACEAE. YELLOW-EYED GRASS FAMILY.

Leaves basal: blades thickish. Flowers perfect, in a compact terminal spike. Sepals 3, the two lateral ones firm, keeled and often appendaged, persistent, the third larger, deciduous. Petals 3, fugacious: anthers linear. Androecium of 3 stamens usually alternating with 3 staminodia. Gynoecium 3-carpellary. Fruit a capsule.

1. **XYRIS** [Gronov.] L. Rigid plants with basal equitant leaves and a terminal spike with indurated bracts.

1. **X. arenicola** Small. Leaves with dark dilated bases, 1-4 dm. long, usually spirally twisted: scapes 3-7 dm. tall, somewhat flattened above, spirally twisted: spikes cylindric or conic-oblong, 1.5-3 cm. long, often acute: lateral sepals 8-12 mm. long; fringe of the wing firm: corolla yellow.—Pinelands and open sandy places, L. keys.—[E. K.]—YELLOW-EYED GRASS.

## FAMILY 2. ERIOCAULACEAE. PIPEWORT FAMILY.

Perennial and perhaps rarely annual, mostly acaulescent, bog or aquatic herbs. Leaves clustered: blades narrow. Scapes simple, subtended by sheathing bracts. Flowers monoecious (androgynous), or rarely dioecious, densely crowded in a terminal involucrate head. Perianth in 2 series (the inner rarely obsolete). Staminate flowers with as many stamens as the sepals or twice as many. Pistillate flowers with a 2-3-celled ovary. Fruit a capsule.

1. **LACHNOCAULON** Kunth. Staminate flowers: sepals 3; petals obsolete; stamens 3; filaments united below, coalescent with a rudimentary corolla or pistil, this with 3 lobes at the top; anthers 1-celled. Pistillate flowers: sepals 3; petals obsolete.

1. **L. anceps** (Walt.) Morong. Leaf-blades 2-6 cm. long, narrowly linear-attenuate, sparingly pubescent or glabrate: scapes 0.5 dm. tall, very slender,



pubescent; heads spheroidal, 5 mm. thick or more; bractlets and sepals ciliate with relatively long hairs.—Sandy places, Key West.—HAIRY-PIPEWORT.

### FAMILY 3. COMMELINACEAE. SPIDERWORT FAMILY.

Annual or perennial caulescent succulent herbs. Leaves alternate, sheathing at the base. Flowers perfect, the mostly umbel-like cymes involucrate. Calyx of 3 persistent herbaceous sepals. Corolla of 3 equal or unequal delicate petals. Androecium of 5-6 stamens, sometimes 2 or 3 mere staminodia. Gynoecium 2-3-carpellary. Styles united. Fruit a loculicidally 2-3-valved capsule.

1. **COMMELINA** [Plum.] L. Leaf-blades spreading, relatively short. Cymes borne in a specialized folded involucre. Perianth irregular. Stamens 3 or rarely 2. Capsules hidden in the spathe.—DAY-FLOWER. DEW-FLOWER.

Leaf-blades linear to narrowly linear-lanceolate; leaf-sheaths glabrous or nearly so.

Rootstocks and roots abbreviated, the latter slender-fusi-

1. *C. hamipila*.

form; internodes below the sheath pubescent or scabrous. Rootstocks and roots elongate, the latter cord-like; inter-

2. *C. angustifolia*.

nodes below the sheaths glabrous. Leaf-blades lanceolate, elliptic or oblong-lanceolate; leaf-sheath

3. *C. elegans*.

16 1. ***C. hamipila*** Wright. Stem or branches 1-4 dm. long, from a cluster of fusiform roots: leaf-blades linear or narrowly linear-lanceolate, attenuate: spathe about 2 cm. long, acuminate: capsules about 5 mm. long. [*C. Swingleana* Nash.]—Pinelands and sandy places, L. keys.—[E. K.]—(*Cuba*.)

117 2. ***C. angustifolia*** Michx. Stem or branches 2-8 dm. long, from cord-like roots: leaf-blades linear, sometimes narrowly so, flat, attenuate: spathes 2-2.5 cm. long, acute or acuminate: capsules 4-5 mm. long.—Sand-dunes and hammocks, U. S. keys, U. keys.—[E. K.]

118 3. ***C. elegans*** H. B. K. Stem and branches 2-9 dm. long: leaf-blades lanceolate to elliptic or oblong-lanceolate, 4-10 cm. long: spathes 1.5-2 cm. long, acute: capsules about 4 mm. long.—Coastal sand-dunes, U. S. keys.—(*Ber., Bah., Ant.*)

### FAMILY 4. PONTEDERIACEAE. PICKEREL-WEED FAMILY.<sup>1</sup>

Bog or aquatic herbs with rootstocks. Leaves alternate: blades dilated, narrow, or mere phyllodia. Flowers 1 or several from a bract-like spathe. Calyx and corolla of rather similar partially united members. Androecium of 3-6 stamens: filaments unequally adnate to the perianth tube. Gynoecium 3-carpellary, but sometimes with a 1-celled ovary. Fruit a 1-seeded utricle or a many-seeded capsule.

115 1. **PONTEDERIA** L. Bog herbs. Leaf-blades narrow or broad, on tapering petioles. Spadix many-flowered. Perianth 2-lipped, the lobes nearly equal. Anthers versatile. Ovary 1-celled. Seed solitary.

119 1. ***P. cordata*** L. Leaves with tapering petioles and deltoid to ovate blades 10-20 cm. long (or with linear-lanceolate or lanceolate blades, *P. cordata lancifolia*): perianth bright-blue or white; tube 7-10 mm. long; limb 9-14

<sup>1</sup>Plants too old for identification, but apparently representing the PICKEREL-WEED were observed in a lime-sink on Big Pine Key in 1912. The plant is admitted here as doubtfully occurring in the Florida Keys.

mm. broad, the lobes shorter than the tube.—[E. K.]—(*Cuba.*)—WAMPEE.  
PICKEREL-WEED.

# FAMILY 5. **BROMELIACEAE.** PINEAPPLE FAMILY.

Epiphytic or rarely terrestrial herbs, commonly with scurfy foliage. Leaves usually crowded at the base of the stem: blades entire or spiny-toothed. Flowers perfect, regular, solitary or spicate. Calyx of 3 sepals. Corolla of 3 narrow petals. Androecium of 3-6 stamens. Gynoecium 3-carpellary, the ovary superior or inferior: styles united. Ovules numerous. Fruit baccate or capsular.

Ovary superior: fruit capsular: leaves spineless.

Style filiform: capsule elongate: seed-appendage straight.

Drooping plants, with the flowers axillary to leaf-like bracts and remote.

1. **DENDROPOGON.**

Upright plants, with the flowers in distichous bracted spikes.

2. **TILLANDSIA.**

Style short or wanting: capsule ovoid: seed-appendage folded.

3. **CATOPSIS.**

Ovary inferior: fruit a syncarp, baccate: leaves spiny.

4. **ANANAS.**

1. **DENDROPOGON** Raf. Pendent festoon-like plants, with regularly leafy stems. Leaves remote: blades linear-filiform above the base. Flowers axillary.

1. **D. usneoides** (L.) Raf. Plant clothed with silver-gray scales. Stems filiform, often greatly elongate: leaves 2.5-8 cm. long: flowers fragrant: sepals 5-7 mm. long, green: petals linear-spathulate, about twice as long as the sepals, yellow or yellowish: capsules 15-30 mm. long.—Hammocks and thickets, U. S. keys, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—LONG-MOSS. SPANISH-MOSS. FLORIDA-MOSS.

2. **TILLANDSIA** L. Erect plants, with scape-like stems. Leaves mostly basal and crowded, those of the stem more or less reduced: blades tapering from a broad base. Flowers in terminal simple or branched spikes, the bracts firm. Sepals, and petals, distinct. Filaments, and anthers, free.—AIR-PLANT.

Flowering stems scape-like, filiform or nearly so, with 1 or 2 inconspicuous sheathing scales.

1. *T. recurvata.*

Flowering stems conspicuously leafy, their leaves smaller than the basal ones.

Basal leaves about as long as the stems or surpassing them.

Leaf-blades less than 2 cm. broad at the base.

2. *T. tenuifolia.*

Leaf-blades more than 2 cm. broad at the base.

Leaves dilated at the base but not bladder-like, erect or ascending, nearly straight.

3. *T. fasciculata.*

Leaves with bladder-like dilations at the base, diffusely spreading and twisted.

4. *T. Balbisiana.*

Basal leaves shorter than the stems.

Bracts and flowers erect or appressed to the rachis.

Leaves of the stem with long spreading or recurved tips.

5. *T. circinata.*

Leaves of the stem merely clasping scales.

6. *T. utriculata.*

Bracts and flowers more or less strongly spreading.

7. *T. aloifolia.*

1. **T. recurvata** L. Plants fuzzy, 5-15 cm. tall: blades of the basal leaves recurved, setaceous-filiform from short bases 3-4 mm. wide: bracts lanceolate, 10-15 mm. long: sepals 7-9 mm. long: petals 12-14 mm. long: capsules 2-2.5 cm. long.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

2. **T. tenuifolia** L. Plants sometimes reddish, 2-3 dm. tall: blades of the basal leaves with the dilated basal portion 8-12 mm. long: sepals 10-12 mm.

long: capsules 18–20 mm. long.—Hammocks, U. keys, L. keys.—[E. K.]—(*Cuba, Ant.*)

173 3. *T. fasciculata* Sw. Plants inconspicuously scurfy, 2–6 dm. tall: blades of the basal leaves attenuate from the dilated somewhat saccate bases, about as long as the stem or longer: bracts of the inflorescence 22–30 mm. long, becoming lustrous, keeled: sepals 25–28 mm. long: capsules 25–30 mm. long.—Hammocks, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

4. *T. Balbisiana* Schult. Plants gray-scurfy, 2–9 dm. tall: blades of the basal leaves rather abruptly narrowed into twisted and spreading tips above the bladder-like basal portion: inflorescence branched; bracts 15–20 mm. long, neither keeled nor ribbed: sepals 15–17 mm. long: capsules about 40 mm. long.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

175 5. *T. circinata* Schlecht. Plants gray-scurfy, 1–2 dm. tall: blades of the basal leaves curved, attenuate from the saccate bases: inflorescence simple; bracts 20–25 mm. long, ribbed: sepals 20–22 mm. long: capsules 50–60 mm. long.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

176 6. *T. utriculata* L. Plants somewhat scurfy, 3–20 dm. tall: blades of the basal leaves nearly flat, attenuate from the dilated bases: inflorescence branched; bracts 15–20 mm. long: sepals 15–20 mm. long: capsules 35–45 mm. long.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

177 7. *T. aloifolia* Hook. Plants pale-scurfy, 3–9 dm. tall: blades of the basal leaves gradually narrowed from the dilated bases: inflorescence branched; bracts 17–31 mm. long, more or less spreading: sepals 20–25 mm. long: capsules 45–60 mm. long.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

178 3. *CATOPSIS* Griseb. Plants resembling *Tillandsiae* in habit, but inflorescence inconspicuously bracted. Flowers small and inconspicuous. Style short or wanting. Capsule ovoid.

179 1. *C. Berteroniana* (Schult.) Mez. Blades of the basal leaves narrowed to the apex: bracts 10–12 mm. long: sepals 11–13 mm. long: capsules 12–13 mm. long, abruptly pointed.—Hammocks, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

2. *ANANAS* Adans. Terrestrial plants, with stout scape-like stems. Leaves mainly basal: blades narrow and elongate, spiny edged. Flowers in a terminal leafy-bracted spike, the lower part of which, both ovaries and bracts ripens into an aggregate juicy cone-like fruit.

179 1. *A. Ananas* (L.) Lyons. Leaves 25–50, crowded, 1–2 m. long, the marginal spines hooked: stem erect: corolla fully twice as long as the calyx: fruit ovoid, oblong, or oblong-conic, 1–4 dm. long, fragrant.—Pinelands and cultivated grounds, U. keys, L. keys. Nat. of the tropics.—[E. K.]—(*Ant.*)—PINEAPPLE.

### Order LILIALES.

Herbs, commonly fleshy or grass-like, or vines or trees. Leaves with narrow or dilated blades, sometimes scale-like or terete. Flowers perfect, polygamous, or dioecious, complete, mostly regular. Perianth of 3–6 members which are usually distinguishable into calyx and corolla, sometimes partially united. Androecium of 3–6 stamens. Gynoecium 3-carpellary or rarely 2-carpellary. Ovary superior or essentially so. Fruit capsular or baccate.

Styles present, distinct or united: stigmas terminal: erect plants.

Herbs with bulbs, corms, or rootstocks.

Shrubby plants with caudices, or trees.

Styles wanting: stigmas introrse: vines.

Fam. 1. CONVALLARIACEAE.

Fam. 2. DRACAENACEAE.

Fam. 3. SMILACACEAE.

### FAMILY 1. CONVALLARIACEAE. LILY-OF-THE-VALLEY FAMILY.

Perennial herbs with rootstocks. Leaves alternate, sometimes all basal. Flowers in a terminal cluster, raceme, or panicle, or axillary. Calyx of 2 or 3 sepals. Corolla of 2 or 3 petals, together with the sepals sometimes partially united. Androecium of 4 or 6 stamens. Gynoecium of 2 or 3 united carpels. Fruit a berry or rarely a tardily dehiscent capsule.

1. **SANSEVIERIA** Thunb. Succulent herbs with stout rootstocks. Leaves erect, flat or nearly terete. Flowers in narrow panicles, erect or ascending. Perianth white or greenish: lobes narrow, about as long as the cylindric tube. Capsule membranous. Seeds baccate.

170 1. **S. guineensis** Willd. Leaves 4–10 dm. tall, mottled: panicle many-flowered: perianth-lobes linear or linear-spatulate, 14–18 mm. long, curled back.—Cultivated grounds and waste places, Key West. Nat. of Africa.—[E. K.]—(Bah., Cuba, Ant.)—AFRICAN BOWSTRING-HEMP.

### FAMILY 2. DRACAENACEAE. YUCCA FAMILY.

Shrubby plants or trees, with woody generally copiously leafy caudices. Leaves alternate: blades narrow, firm or rigid, sometimes filiferous. Flowers in racemes or panicles terminating scape-like stems. Calyx of 3 generally white or pale sepals. Corolla of 3 petals nearly like the sepals. Androecium of 6 stamens. Gynoecium superior, of 3 united carpels. Style stout, sometimes obsolete during anthesis. Fruit a primarily loculicidal capsule, sometimes indehiscent or baccate.

1. **YUCCA** [Rupp.] L. Caudex commonly leafy throughout. Flowers perfect, relatively large, in panicles or racemes. Sepals and petals several nerved, deciduous. Capsule dehiscent or baccate.—SPANISH-BAYONET.

121 1. **Y. aloifolia** L. Caudex often 1–2.5 m. tall, commonly branched: leaves very numerous, spreading above, deflexed and deciduous below, scabrous-margined: panicle ample and showy, 3–7 dm. long: sepals and petals 4–6 cm. long: capsules 7–9 cm. long.—Coastal sand-dunes, U. S. keys.—[E. K.]—(Ber., Bah. Ant.)—SPANISH-DAGGER.

### FAMILY 3. SMILACACEAE. SMILAX FAMILY.

Perennial armed or unarmed vines. Leaves alternate: blades several-ribbed and netted-veined, commonly persistent: petiole usually bearing a pair of appendages. Flowers dioecious, in axillary peduncled umbels. Perianth regular, usually green, that of the staminate flowers larger than that of the pistillate. Calyx of 3 sepals. Corolla of 3 petals. Androecium of 6 stamens: anthers erect. Gynoecium 3-carpellary. Stigmas 3, sessile, sometimes elongate. Fruit a berry, with 3 bands of strengthening tissue in the pulp connecting the base and apex.

1. **SMILAX** [Tourn.] L. Leaf-blades leathery. Flowers not showy. Berries red, blue, or black. Vigorous shoots often bear very large leaves.—GREENBRIER. HORSBRIER. SMILAX.



Peduncles of the pistillate plant much longer than the accompanying petiole.

Peduncles of the pistillate plant shorter than the petiole or barely surpassing it.

1. *S. Bona-Nox*.

Berries globular or spheroidal: leaf-blades not spiny-toothed.

Leaf-blades elliptic, oblong, oblong-lanceolate or linear.

2. *S. laurifolia*.

Leaf-blades of an ovate type, often lobed at the base.

3. *S. Beyrichii*.

Berries ovoid or oval: leaf-blades spiny-toothed.

4. *S. havanensis*.

37 1. *S. Bona-Nox* L. Leaf-blades broadly ovate to hastate or fiddle-shaped, 3-12 cm. long, sometimes spinulose-margined, truncate or cordate at the base: pedicels 4-8 mm. long: sepals and petals deep-green, those of staminate flowers 4-5 mm. long: berries 4-6 mm. in diameter.—Hammocks and pinelands, L. keys.—[E. K.]—(*Ber.*)

38 2. *S. laurifolia* L. Leaf-blades elliptic, oblong, or oblong-lanceolate, or rarely linear, 5-15 cm. long, acute at the apex, the base narrow: sepals and petals of the staminate flowers 5-6 mm. long: berries ovoid or globose-ovoid, 4-6 mm. long.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba.*)

39 3. *S. Beyrichii* Kunth. Leaf-blades ovate, broadly oblong, or pandurate, 2-10 cm. long, cuspidate or mucronate at the apex, entire, more or less auricled or dilated at the base: pedicels 4-8 mm. long: sepals and petals of the staminate flowers 4-5 mm. long: berries subglobose, 3-6 mm. in diameter.—Hammocks and coastal sand-dunes, U. S. keys, U. keys.—[E. K.]—(*Bah.*)

40 4. *S. havanensis* Jacq. Leaf-blades oblong to orbicular-ovate, 2.5-5 cm. long, spiny-toothed: pedicels 1-2 mm. long: sepals and petals of the staminate flowers 1-2 mm. long: berries oval or ovoid.—Pinelands and hammocks, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

### Order AMARYLLIDALES.

Perennial herbs or vines. Leaves with narrow or dilated blades. Flowers perfect or dioecious, complete. Perianth of 3 sepals and 3 petals, which are distinct or partially united. Androeceum of 3-6 stamens. Gynoeceum mostly 3-carpellary, the ovary partially or wholly inferior. Fruit capsular or baccate.

Stamens 6: anthers introrse: styles united.  
Stamens 3: anthers extrorse: styles distinct.

Fam. 1. LEUCOJACEAE.  
Fam. 2. Ixiaceae.

### FAMILY 1. LEUCOJACEAE. AMARYLLIS FAMILY.

Herbs, commonly succulent, with rootstocks, bulbs, or corms. Leaves alternate, wholly or mainly basal. Flowers perfect. Calyx of 3 sepals. Corolla of 3 petals, with the sepals partially united into a tube. Androeceum of 6 stamens, the filaments sometimes partially united into a crown. Gynoeceum of 3 united carpels. Ovary inferior. Styles united. Ovules numerous. Fruit a capsule or a berry.

Perennial from corms or elongated rootstocks.

Ovary and capsule one-half inferior.

1. *ALETRIS*.

Ovary and capsule wholly inferior.

Inflorescence umbel-like: capsule circumscissile.

2. *HYPOXIS*.

Inflorescence spicate, racemose or paniculate: capsules

3-valved.

3. *AGAVE*.

Perennial from bulbs.

4. *HYMENOCALLIS*.

41 1. *ALETRIS* L. Caulescent herbs with thick rootstocks and scape-like stems. Basal leaves spreading. Flowers in an interrupted spike or raceme.

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Perianth white to yellow, campanulate, cylindric, or obovoid, granular or mealy: lobes much shorter than the tube. Filaments adnate to the middle of the perianth or above it.

13. 1. **A. bracteata** Northrop. Stem 3-6 dm. tall: blades of the basal leaves nearly linear to linear-lanceolate, 6-12 cm. long: perianth white, 6-8 mm. long; lobes lanceolate to triangular, spreading: capsule ovoid, long-beaked.—Pinelands, L. keys.—[E. K.]—(*Bah.*)—COLIC-ROOT. STAR-GRASS.

2. **HYPOXIS** L. Acaulescent herbs with corm-like rootstocks. Leaves with elongate-linear or nearly filiform blades. Scapes slender, sometimes tufted. Flowers solitary or clustered. Perianth mainly yellow. Filaments adnate to the base of the perianth. Anthers erect.

16. 1. **H. juncea** J. E. Smith. Leaf-blades involute, linear-filiform, 1-3 dm. long, glabrous above: perianth-lobes oblong or oblong-lanceolate, 9-12 mm. long: capsule 4-6 mm. long.—Pinelands, L. keys.—[E. K.]—(*Bah., Cuba.*)—STAR-GRASS.

3. **AGAVE** L. Succulent or somewhat woody plants, with more or less elongate caudices upon which the leaves are crowded. Flowers in panicles. (Plants flower after long periods of growth.) Anthers versatile.—CENTURY-PLANT.

Leaf-blades entire or obscurely toothed: filaments over twice the length of the perianth. 1. *A. rigida*.

Leaf-blades sharply toothed: filaments less than twice the length of the perianth. 2. *A. decipiens*.

- 108 1. **A. rigida** Mill. Flowering stem erect, 4.5-9 m. tall: leaves 12-18 dm. long: blades broadest at the middle or above it, the terminal spine 1-2 cm. long, the marginal teeth minute or obsolete: perianth greenish; lobes 21-25 mm. long: anthers about 20 mm. long.—Pinelands and cultivated grounds. L. keys. Nat. of Trop. Am.—[E. K.]—(*Bah., Cuba, Ant.*)—SISAL.

- 39 2. **A. decipiens** Baker. Flowering stem 5-6 m. tall: leaves 10-25 dm. long: blades broadest about the middle, the terminal spine 1-1.5 cm. long, the marginal teeth firm, recurved: perianth greenish; lobes 16-17 mm. long: anthers 14-16 mm. long.—Hammocks, U. keys, L. keys, L. S. keys.—[E. K.]

4. **HYMENOCALLIS** L. Herbs with coated bulbs. Leaves basal, spreading: blades linear or nearly so. Scape terminated by a single flower or by a cluster, the flowers erect. Perianth showy, mostly white, pink, or purplish: tube elongate: lobes narrow. Filaments adnate to the perianth-tube above which they are connected by a crown.

- 140 1. **H. caymanensis** Herb. Leaf-blades 3-8 dm. long, 6-8 cm. wide, obtuse, tapering somewhat toward the base: flowers 6-12: perianth-tube 13-15 cm. long: lobes about 10 cm. long.—Coastal sand-dunes and hammocks, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—SPIDER-LILY.

## FAMILY 2. IXIACEAE. IRIS FAMILY.

Perennial, mostly caulescent, herbs with short or long rootstocks. Leaves equitant, usually elongate. Flowers perfect, mostly regular, arising from spathe-like bracts. Calyx of 3 sepals. Corolla similar to the calyx or of 3 very different members. Androecium of 3 stamens, the filaments partially adnate to the perianth. Gynoecium of 3 united carpels. Ovary inferior. Styles entire or divided, sometimes petal-like. Ovules few to numerous. Fruit a loculicidal 3-valved capsule.

1. **SISYRINCHIUM** L. Scapose herbs with rootstocks. Leaf-blades flat. Flowers in 1 or more clusters arising from usually 2 bracts (spathe). Sepals and petals blue, white, or yellow, nearly equal, distinct, deciduous. Capsule globose to cubic. Seeds dry.

1. **S. flagellum** Bicknell. Plants very slender and flexuous, 1-3.2 dm. high, slightly glaucescent, drying dark; leaf-blades narrow and flexuous, 0.5-3 mm. wide, few-striate, smooth-edged; scapes 0.75-1.5 mm. wide, narrowly margined, smooth-edged, often flexuous and geniculate at the nodes; spathes often deflected, 1.5-2 cm. long, the bracts subequal or the inner one longer, and often scarious-margined to the apex, the outer one narrowly acuminate; interior scales much shorter than the bracts; capsules on erect slightly exerted pedicels, subglobose, dark, about 4 mm. high.—Pinelands, L. keys.—[E. K.]—BLUE-EYED GRASS.

### Order SCITAMINALES.

Large, commonly perennial, herbs with rootstocks or tubers. Leaves alternate, sometimes all basal: blades relatively large: petioles sheathing at the base. Flowers very irregular. Perianth white or bright-colored. Androeceum very irregular or sometimes with one stamen or more reduced to staminodia. Gynoeceum compound. Ovary inferior. Fruit a capsule, a berry, or a utricle. Endosperm present.

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### FAMILY 1. MUSACEAE. BANANA FAMILY.

Caulescent, usually large herbs, or trees. Flowers perfect or somewhat monoecious. Calyx of 3 distinct sepals or united into a sheath-like organ. Corolla of 3 distinct petals or of partially united petals, sometimes partially adnate to the calyx. Androeceum of 3 united carpels. Fruit baccate or capsular.

1. **MUSA** L. Tree-like herbs, the stem sheathed by the thick leaf-bases. Leaves with large prominently feather-veined blades. Inflorescence drooping, with large bracts. Petals shorter than the sepals, two of them partially adnate to the calyx-tube, the other short, ending in a bent tip. Berry elongate.—BANANA.

Leaf-blades sessile or nearly so: free petal less than  $\frac{1}{2}$  as long as the perianth.

1. *M. Cavendishii*.

Leaf-blades long-petioled: free petal over  $\frac{1}{2}$  as long as the perianth.

2. *M. sapientum*.

1. **M. Cavendishii** Lamb. Plants stocky, mostly 1-2.5 m. tall: leaf-blades broadly oblong, mostly 1-2 m. long, abruptly contracted at the base: perianth usually over 3.5 cm. long; lateral calyx-lobes prominently appendaged; corolla-lobes ovate: free petal oblong, the tip nearly erect: fruits oblong, mostly 10-15 cm. long, yellowish, the pulp sweet.—Hammocks, U. keys, L. keys. Nat. of China.—[E. K.]—DWARF-BANANA.

2. **M. sapientum** L. Plants rather slender, 3-7 m. tall: leaf-blades mostly 1-2 m. long, narrowed at the base: perianth usually less than 3.5 cm. long; lateral calyx-lobes minutely appendaged; corolla-lobes lanceolate: free petal broadly obovate, the tip inflexed: fruits oblong, 8-11 cm. long, bright-yellow, the pulp sweet.—Hammocks, U. keys, L. keys. Nat. of the E. Indies.—[E. K.]—COMMON-BANANA.

## Order ORCHIDALES.

Terrestrial, aquatic, or epiphytic herbs. Leaves usually fleshy, sometimes scale-like. Flowers mostly perfect and complete, very irregular, except in BURMANNIACEAE. Calyx of 3 sepals. Corolla of 3 petals. Gynoecium compound. Ovary inferior. Seeds numerous. Endosperm wanting.

## FAMILY 1. ORCHIDACEAE. ORCHID FAMILY.

Perennial mostly succulent herbs. Leaves basal or cauline, often sheathing at the base. Flowers very irregular. Sepals 3, 1 median, 2 lateral. Petals 3, 1 median often greatly specialized ("lip"), 2 lateral (petals). Androecium of 1 or more stamens adnate to the style, the 2-8 pollinia waxy or powdery. Gynoecium of 3 united carpels, the ovary twisted. Fruit capsular.

Lip with a long slender spur: pollinia developing tails at the base of the anther which are connected with the glands of the rostellum: filament very short and broad: anther persistent.

Lip 3-parted: petals 2-parted: stigmas erect.

Lip obscurely lobed at the base: petals lobed on one side at the base: stigmas drooping.

Lip spurless, sometimes saccate: pollinia without tails (or they are rarely developed): filament mostly thin and brittle, the anther therefore usually deciduous.

Flowering stem terminal.

Leaves convolute in the bud: pollinia in several distinct masses: lip with an extended sac between the lateral sepals: column short.

Leaves duplicate in the bud.

Lip 3-lobed, shallowly or deeply so, longitudinally crested or appendaged: sepals and petals relatively short, not attenuate.

Column adnate at the base: lip deeply 3-lobed, with a dilated middle lobe and long and narrow lateral lobes: pseudobulbs terete: flowering stem not subtended by a foliaceous spathe.

Column adnate to about the middle: lip obscurely 3-lobed, with a minute middle lobe and broad and short lateral lobes: pseudobulbs flattened: flowering stem subtended by a foliaceous spathe.

Lip entire, clamshell-like, neither crested nor appendaged: sepals and petals elongate, attenuate.

Flowering stem lateral: lip surrounding the column or adnate to it, without a sac: pollinia 4 or 8, with caudiculae but without stipes.

1. HABENARIA.

2. HABENELLA.

3. PHYSURUS.

4. ENCYCLIA.

5. EPICLADIUM.

6. ANACHEILUM.

7. BLETIA.

1. **HABENARIA** Willd. Caulescent herbs. Spike erect. Perianth white or colored. Sepals distinct or nearly so, the lateral ones spreading, slightly inequilateral. Petals unequally 2-parted. Lip 3-parted, spurred. Anther-sacs elevated, each with an appendage at the base. Stigma with narrow appendages, the glands naked.

1. **H. quinqueseta** (Michx.) C. Mohr. Stems 2-5 dm. tall: leaf-blades oblong to oblong-lanceolate, 4-10 cm. long: lateral sepals oblong-ovate 8.5-10 mm. long: narrow lobe of each petal somewhat longer than the narrowly oblong or linear-oblong broader one: middle lobe of the lip linear-spatulate.—Pinelands, L. keys.—[E. K.]

2. **HABENELLA** Small. Caulescent herbs. Spike erect. Perianth yellowish, becoming green. Sepals distinct, the lateral ones spreading, very inequilateral. Petals much smaller than the sepals, sinuately lobed at the apex and with a small basal lobe. Lip entire, with 2 small basal lobes.

Anther-sacs with filiform appendages at the base. Stigma with a short appendage, the glands naked.

1. **H. Garberi** (Porter) Small. Stems 3-6 dm. tall: leaf-blades oblong to oblong-lanceolate, 6-10 cm. long: lateral sepals very broad, 5.5-6.5 mm. long: petals about 4 mm. long, sinuately 3-lobed at the apex: lip 6-10 mm. long, broadly linear, obtuse: spur 12-18 mm. long: capsule-body 10-15 mm. long.—Hammocks, U. keys.—[E. K.]—(*Cuba.*)

3. **PHYSURUS** L. C. Rich. Caulescent succulent herbs, the stems leafy. Leaves with wide blades. Spike compact. Perianth whitish or greenish. Lateral sepals relatively broad, decurrent, together with the base of the lip, as a sac partially adnate to the hypanthium. Petals mostly smaller than the sepals. Lip 3-lobed, the terminal lobe quite as long as the body of the lateral lobes, with a reflexed tip, the broad claw-like base forming part of the spur.

1. **P. querciticola** Lindl. Plant 1-3 dm. tall: leaf-blades lanceolate to ovate, 1-6 cm. long: lateral sepals 4-4.5 mm. long: petals 3.5-4 mm. long, narrower than the sepals, inequilateral.—Hammocks, Big Pine Key.—[E. K.]—(*Bah., Cuba, Ant.*)

4. **ENCYCLIA** Hook. Epiphytic herbs with terete pseudobulbs which bear several erect or arching elongate leaves and a scaly elongate branched flowering stem at the apex. Flowers nodding, subtended by small bracts. Perianth often conspicuous. Lateral sepals rather broad, usually about as wide as the median one. Petals usually of a spatulate type. Lip 3-lobed, the middle lobe much broader than the lateral ones. Column slightly adnate to the lip. Capsules drooping, ribbed.

1. **E. tampense** (Lindl.) Small. Plants 1.5-6 dm. tall: leaf-blades linear to narrowly linear-lanceolate, 8-20 cm. long: flower-stem typically branched: lateral sepals 17-20 mm. long, slightly broadened upward: petals spatulate, deeper brown-shaded than the sepals: lip white and rose-purple; blade 15-17 mm. long, the lateral lobes oblong-lanceolate, the middle lobe orbicular or reniform-orbicular: capsule-body 25-30 mm. long.—Hammocks, U. keys, L. keys.—[E. K.]

5. **EPICLADIUM** Small. Epiphytic herbs with short flattened pseudobulbs which bear several short erect leaves and a relatively short mostly simple flowering stem which is subtended by a long foliaceous spathe. Flowers erect or ascending, subtended by minute bracts. Perianth showy. Lateral sepals rather short, about as wide as the median one. Petals nearly resembling the lateral sepals or more dilated upward. Lip shorter than the sepals and petals, the blade usually rhombic. Column partly adnate to the lip. Capsules nodding, winged.

1. **E. Boothianum** (Lindl.) Small. Plants 1-2 dm. tall, with flattened suborbicular pseudobulbs: leaf-blades spatulate, 6-12 cm. long: flower-stem simple: lateral sepals 11-13 mm. long, elliptic or slightly broadened upward: petals broadly spatulate, brown-spotted like the sepals: lip yellow or mainly so; blade rhombic, 4-6 mm. long, the broad lateral lobes spreading; capsule-body 25-30 mm. long.—Hammocks, Key Largo.—[E. K.]—(*Bah., Cuba.*)

6. **ANACHEILIMUM** Hoffmg. Epiphytic herbs with elongate flattened pseudobulbs which bear several elongate erect leaves and a simple flowering

stem at the apex. Flowers nodding, subtended by often lanceolate bracts. Perianth usually showy. Lateral sepals narrow and elongate, usually attenuate, resembling the median one. Petals usually slightly shorter than the sepals. Lip much shorter than the sepals and petals; blade very broad, clamshell-like, entire. Column partly adnate to the lip. Capsules drooping, wing-angled.

1. *A. cochleatum* (L.) Hoffing. Plants 2-5 dm. tall: leaf-blades linear or nearly so, 1.5-4 dm. long: flower-stem simple: lateral sepals 25-30 mm. long, linear-lanceolate and attenuate: lip brown or purplish; blade orbicular-reniform, 16-20 mm. long, entire, abruptly pointed: capsule-body 20-30 mm. long.—Hammocks, U. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

7. *BLETIA* R. & P. Caulescent herbs with corms. Leaves several from the top of the corm, mostly persisting until after the lateral flower-stem arises. Raceme loosely flowered. Perianth mainly pink or purplish. Lateral sepals slightly inequilateral. Petals nearly or quite similar to the lateral sepals. Lip wide, crested, 3-lobed, the middle lobe crisped. Capsules mostly erect.

150 1. *B. purpurea* (Lam.) DC. Leaf-blades broadly linear to linear-elliptic, 1.5-3.5 dm. long, attenuate: flower-stem 3-11 dm. tall: lateral sepals oblong-ovate to broadly oblong, 11-16 mm. long, abruptly acuminate: petals oval or ovate-oval, barely as long as the sepals: lip 11-15 mm. long, with a broad base, ear-like lateral lobes and a crisped and crested middle lobe: capsule 3-4 cm. long.—Pinelands, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

## SUBCLASS 2. DICOTYLEDONES.

Stems consisting of pith, wood, and bark (endogenous in rare cases). Early leaves opposite.

### Series 1. CHORIPETALAE.

Petals separate and distinct from each other, or wanting.

#### Order CASUARINALES.

Shrubs or trees, with loosely jointed branches resembling stems of *Equisetum*. Leaves reduced to scales, whorled at the nodes and decurrent on the internodes. Flowers monoecious, the staminate in slender terminal spikes with imbricate bracts, often with a posterior and anterior perianth-part, 1 stamen with a large anther. Pistillate flowers in dense spikes or cones: perianth wanting: ovary 1-celled: style-branches slender. Fruit an aggregate of winged achenes.

#### FAMILY 1. CASUARINACEAE. BEEFWOOD FAMILY.

Stems with more or less whorled branches. Staminate spikes long-stalked. Pistillate spikes short-stalked. Gynoecium 2-carpellary.

1. *CASUARINA* Adans. Stem clothed with a smooth or smoothish bark, except when very old. Stamens with long filaments and short anthers. Stigmas elongate. Fruiting spike compact.



- 151 1. *C. equisetifolia* Forst. A tree often 10 m. tall, with many slender branches: leaves (scales) 1-3 mm. long, 6-8 in each whorl: staminate spikes 1-4 cm. long: pistillate spikes globular, becoming 1-2 cm. in diameter in fruit: seed-wing nearly thrice as long as the body.—Cultivated grounds and waste places. U. keys, L. keys. Nat. of Oceania.—[E. K.]—(*Bah.*, *Cuba*, *Ant.*)—BEEF-WOOD. AUSTRALIAN-PINE.

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## Order MYRICALES.

Shrubs or small trees, usually aromatic. Leaves alternate: blades simple, sometimes toothed or pinnatifid. Flowers dioecious or monoecious, the staminate in long aments, each flower consisting of an androecium of 2-8 stamens, the pistillate in short aments, each flower consisting of a gynoeceum of 2 united carpels on a bract subtended by 2 bractlets and surrounded by 2-8 scales. Stigmas 2. Ovule solitary. Fruit a nut, the epicarp often waxy.

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## FAMILY 1. MYRICACEAE. BAYBERRY FAMILY.

Leaves resinous-dotted. Staminate and pistillate flowers in scaly aments. Perianth wanting. Ovary 1-celled.

1. *CEROTHAMNUS* Tidestrom. Dioecious shrubs. Leaf-blades entire or merely toothed. Pistillate aments not bristly. Fruit globose, drupe-like with a fleshy waxy epicarp.

- 152 1. *C. ceriferus* (L.) Small. Shrub, or tree becoming 12 m. tall: leaf-blades oblanceolate to oblong-oblanceolate, 3-10 cm. long, entire or sharply toothed: staminate aments 1-1.5 cm. long: nuts 2-3 mm. in diameter. [*Myrica cerifera* L.]—Hammocks and pinelands, U. S. keys, L. keys.—[E. K.]—(*Ber.*, *Bah.*, *Cuba*, *Ant.*)—BAYBERRY. WAX-MYRTLE. MYRTLE.

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## Order URTICALES.

Shrubs or trees, or herbs. Leaves alternate, or in the case of herbs often opposite: blades simple, entire, toothed, or divided. Flowers various, not in aments. Calyx present. Corolla wanting. Androecium often of as many stamens as there are sepals. Gynoeceum of a single carpel or of 2 united carpels. Fruit an achene, a samara, drupe, syncarp, or syconium.

Fruit an achene, the achenes sometimes in the accrescent sepals and disposed in a syncarp.

Flowers not on a receptacle: fruits not forming syncarps: sepals neither thick and juicy, nor enveloping the achenes. Fam. 1. URTICACEAE.

Flowers on the outside or inside of a receptacle: fruits forming syncarps: sepals accrescent, enveloping the achenes.

Fam. 2. ARTOCARPACEAE.  
Fam. 3. ULMACEAE.

Fruit a samara or a drupe, sometimes nut-like.

## FAMILY 1. URTICACEAE. NETTLE FAMILY.

Herbs or shrubby plants (ours), often with stinging hairs. Leaf-blades entire, toothed, or rarely lobed. Flowers dioecious, monoecious, or polygamous, cymose. Calyx of 2-5 distinct or partially united sepals. Androecium of 2-5 stamens. Gynoeceum a single carpel. Fruit an achene.

Flower-clusters not involucrate: leaves mostly opposite.

1. PILEA.

Flower-clusters involucrate: leaves mostly alternate.

2. PARIETARIA.

1. **PILEA** Lindl. Depressed, often creeping, succulent herbs. Leaves mainly alternate: blades entire, 1-ribbed. Flowers monoecious. Sepals of the pistillate flowers 3, very unequal, 2 of them flat, the third one much larger, helmet-like, often enclosing the achene. Stigma tufted.

1. **P. microphylla** (L.) Liebm. Plants with spreading or creeping succulent branches 2-15 cm. long: leaf-blades elliptic, oblanceolate, or obovate, 2-6 mm. long, acute or acutish: cymes sessile or nearly so: sepals ovate, thin, about 0.5 mm. long, abruptly pointed, greenish or pink: achenes about 0.4 mm. long.—Hammocks, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

2. **PARIETARIA** [Tourn.] L. Flimsy succulent herbs. Leaves alternate: blades entire. Flowers polygamous, in clustered involucrate axillary cymes, the involucre of 2-6 more or less united bracts. Stigma tufted.

1. **P. floridana** Nutt. Stems 1-5 dm. long, usually puberulent, often much branched: leaf-blades ovate to subrhombic, 0.5-5 cm. long: sepals acute: achene ovoid, 1 mm. long.—Hammocks, U. keys.—[E. K.]—(*Ber., Cuba.*)—PELLITORY.

## FAMILY 2. ARTOCARPACEAE. MULBERRY FAMILY.

Shrubs or trees, the sap milky. Leaves mostly alternate: blades equilateral, entire, toothed, or lobed. Flowers monoecious or dioecious, in ament-like spikes or enclosed in a receptacle, the staminate with 3 or 4 stamens, the pistillate with a calyx of 3-5 sepals which greatly enlarge and subtend or envelope the achene: gynoeceium of 1 or of 2 united carpels; styles or stigmas 1 or 2. Fruit a syncarp or syconium.

1. **FICUS** [Tourn.] L. Shrubs, trees, or vines, with smoothish bark. Leaves mainly persistent: blades entire, toothed, or lobed. Flowers in hollow receptacles, the staminate with a calyx of 2-6 sepals, or these obsolete, and 1 or 2, or rarely 3, stamens. Pistillate flowers numerous: style rather long: stigma clavate, peltate, or 2-lobed. Fruit depressed, globular, or elongate, the achenes included.—FIG.

Receptacle sessile: leaf-blades narrowed at the base.

1. *F. aurea*.

Receptacle stalked: leaf-blades rounded or cordate at the base.

2. *F. brevifolia*.

1. **F. aurea** Nutt. Tree, often starting as a vine, becoming 20 m. tall, with glabrous twigs: leaf-blades oblong, or oval, 3-10 cm. long, acute or short-acuminate at the base: fruit spheroidal or obovoid, about 2 cm. in diameter.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—GOLDEN-FIG.

2. **F. brevifolia** Nutt. Shrub, or tree sometimes 15 m. tall, with glabrous twigs: leaf-blades ovate, oval, or rarely obovate, 3-10 cm. long, mainly rounded or cordate at the base: fruits subglobose, 2-2.5 cm. in diameter.—Hammocks and pinelands, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—WILD-FIG.

## FAMILY 3. ULMACEAE. ELM FAMILY.

Shrubs or trees, the sap watery. Leaves alternate: blades inequilateral, commonly toothed. Flowers perfect, polygamous, or monoecious, variously disposed. Calyx of 4 or 5, or rarely 3-9, partially united sepals. Androeceium of usually as many stamens as there are sepals. Gynoeceium of 2 united carpels. Fruit a samara or a drupe, or nut-like.

9 **1. TREMA** Lour. Unarmed shrubs or trees, the bark smoothish. Leaves persistent: blades toothed, slightly inequilateral. Calyx rotate, the lobes much longer than the tube. Stigmas 2, entire. Drupe ovoid or globose.

Leaf-blades cordate at the base: anthers over 1 mm. long: drupes yellow or orange.

1. *T. floridana*.

Leaf-blades obtuse or rounded at the base: anthers less than 1 mm. long: drupes pink.

2. *T. Lamarckiana*.

157 **1. T. floridana** Britton. Shrub, or tree 6 m. tall, with copiously pubescent foliage: leaf-blades ovate, oblong-ovate, or lanceolate, 4–10 cm. long, softly pubescent beneath: calyx greenish: drupes subglobose, 2.5–3.5 mm. in diameter, yellow or orange.—Hammocks, U. keys.—[E. K.]

157 **2. T. Lamarckiana** (R. & S.) Blume. Small tree or shrub, with finely hirsute or velvety twigs: leaf-blades oblong, lanceolate, or narrowly ovate, mostly 1–3 cm. long, finely serrate, scabrous above, veiny-reticulate beneath, obtuse or rounded at the base: calyx whitish or pinkish: drupes ovoid or globose-ovoid, 2–2.5 mm. in diameter, pink.—Hammocks, L. keys.—(*Ber., Bah., Cuba, Ant.*)

### Order POLYGONALES.

Shrubs, herbs, trees, or vines. Leaves alternate, or sometimes opposite or whorled: blades mostly entire: stipules present, usually as a sheath. Flowers perfect, monoecious, dioecious, or polygamous, variously disposed. Hypanthium long or short. Calyx of 2–6 sepals, which sometimes develop keels or wings. Corolla wanting. Androecium of 2–9 stamens. Gynoecium of 2 or 3 united carpels, the ovary superior. Ovule orthotropous. Fruit an achene.

#### FAMILY 1. POLYGONACEAE. BUCKWHEAT FAMILY.

Plants various in habit. Leaves with manifest, usually sheathing, stipules (ocreae) and inflorescence not involucrate, or the stipules obsolete and the inflorescence involucrate.

142 **1. COCCOLOBIS** P. Br. Shrubs or trees, or rarely vines. Leaves alternate, the ocreae cylindric or funnelform. Spikes or racemes elongate. Sepals 5, surmounting the accrescent hypanthium. Stamens 8. Stigmas 3, entire. Achene 3-angled, included in the hypanthium.

Leaf-blades longer than wide, narrowed at the base: fruits about 1 cm. thick.

1. *C. laurifolia*.

Leaf-blades wider than long, cordate at the base: fruits 1.5–2 cm. thick.

2. *C. uvifera*.

159 **1. C. laurifolia** Jacq. Tree: leaf-blades oblong to ovate or obovate, 5–10 cm. long, narrowed or rounded at the base: panicles less than 1 dm. long during anthesis, the lower flower-clusters usually with 3 or 4 pedicels: sepals 2.5–3.5 mm. long: fruits globose-ovoid.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—PIGEON-PLUM.

160 **2. C. uvifera** (L.) Jacq. Shrub or small tree: leaf-blades suborbicular, 4–20 cm. wide, cordate at the base: panicles over 1 dm. long in anthesis, dense: sepals 2–3 mm. long: fruit subglobose, borne in grape-like clusters.—Coastal sand-dunes and hammocks, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—SEA-GRAPE.

## Order CHENOPODIALES.

Herbs, often partially woody, or shrubs, or trees. Leaves alternate or opposite, occasionally scale-like. Flowers mostly perfect, sometimes monoecious or dioecious. Calyx usually present, the sepals mainly separate. Corolla wanting, or present and of minute or large petals. Androeium of 1-several stamens. Gynoeium of a single carpel or of several united carpels, the ovary mostly superior. Fruit an achene, utricle or a berry, often a capsule or a pyxis, or sometimes an anthocarp.

Fruit a utricle, achene or berry, sometimes an anthocarp, not valvate, or merely circumscissile.

Fruit various, not an anthocarp.

Fruit utricular.

Bracts not scarious: stipules wanting.

Erect or diffuse plants.

Climbing vines.

Fam. 1. CHENOPODIACEAE.

Fam. 2. BASELLACEAE.

Fam. 3. AMARANTHACEAE.

Bracts or stipules scarious.

Fruit baccate or an achene, or aggregate.

Fruit an achene or a berry: flowers not in cones.

Hypanthium wanting: stamens borne be-

low the ovary: stigmas not penicellate.

Fam. 4. PHYTOLACCACEAE.

Hypanthium present: stamens borne on the edge of the hypanthium: stigma penicellate.

Fam. 5. PETIVERIACEAE.

Fruit aggregate: flowers in axillary cones.

Fam. 6. BATIDACEAE.

Fruit an anthocarp, the achenes surrounded by the calyx-tube.

Fam. 7. ALLIONIACEAE.

Fruit a capsule dehiscent by apical or longitudinal valves.

Ovary several-celled: corolla wanting.

Fam. 8. TETRAGONIACEAE.

Ovary 1-celled: corolla mostly present.

Fam. 9. PORTULACACEAE.

## FAMILY 1. CHENOPODIACEAE. GOOSEFOOT FAMILY.

Herbs or woody plants. Leaves alternate or opposite: blades simple. Flowers perfect, polygamous, monoecious, or dioecious, mostly in congested spikes. Calyx of 1, 2, 3, 4, or 5 persistent sepals. Corolla wanting. Androeium of as many stamens as there are sepals. Gynoeium of 2 or more united carpels. Ovary 1-celled. Fruit a utricle, sometimes achene-like.

Embryo annular or conduplicate: endosperm copious (except in *Salicornia*).

Leaves with dilated blades: endosperm copious.

Flowers perfect, or some of them pistillate: calyx fleshy or herbaceous.

1. CHENOPODIUM.

Flowers dioecious or monoecious: pistillate flowers without a calyx: fruit enclosed in 2 bracts.

2. ATRIPLEX.

Leaves mere scales: endosperm wanting.

3. SALICORNIA.

Embryo spirally coiled: endosperm wanting or scant.

4. DONDIA.

1. CHENOPODIUM L. Mealy or aromatic glandular herbs. Leaves alternate: blades mainly toothed, pinnatifid, or pinnately lobed: sepals flat, keeled and often hooded. Anther-sacs commonly contiguous. Ovary depressed or elongate.

Sepals flat or merely concave: embryo not forming a circle: glandular aromatic plants.

1. *C. anthelminticum*.

Sepals hooded, usually keeled at maturity: embryo forming a circle: mealy plants, odorless or heavy-scented.

Sepals strongly keeled: leaf-blades blunt-toothed: seeds over 1 mm. wide.

2. *C. lanceolatum*.

Sepals slightly keeled: leaf-blades sharp-toothed: seeds 1 mm. wide or less.

3. *C. murale*.

161 1. *C. anthelminticum* L. Stem 5-12 dm. tall, branched: leaf-blades lanceolate to oblong-lanceolate or ovate-lanceolate, those of the stem-leaves 3-15 cm. long, coarsely toothed or incised: seeds 0.7-0.8 mm. wide. [*Chenopodium ambrosioides* L.]—HAMMOCKS, coastal sand-dunes and pinelands, U. S. keys, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—MEXICAN-TEA. WORM-SEED.

162 2. *C. lanceolatum* Muhl. Plants mostly 1.5 m. tall or less, bright-green, somewhat mealy: leaf-blades lanceolate to linear-lanceolate, or ovate on the lower part of the stem, 2-5 cm. long: inflorescence rather open, mature flower-clusters dense: seeds about 1.5 mm. wide.—Waste places and cultivated grounds, Key West.—PIGWEED. LAMB'S-QUARTERS.

163 3. *C. murale* L. Plants deep-green, somewhat mealy, 1-6 dm. tall: leaf-blades rhombic-ovate, 2-8 cm. long, coarsely sharply and irregularly toothed: panicles terminal and lateral, the small flower-clusters numerous and close: seeds barely 1 mm. wide.—Waste places and cultivated grounds, Key West.—(*Ber., Bah., Cuba, Ant.*)—NETTLE-LEAVED GOOSEFOOT.

2. *ATRIPLEX* [Tourn.] L. Scaly herbs or shrubs. Leaves alternate or sometimes opposite: blades often angulate or toothed. Flowers monoecious or dioecious, the staminate bractless, the pistillate bracted. Calyx herbaceous. Utricle wholly or partly surrounded by the crested, tubercled, or winged accrescent bracts.

164 1. *A. cristata* H.B.K. Plants green, 3-6 dm. tall: leaf-blades oblong to oblong-lanceolate, 1.5-3 cm. long: mature bracts flabellate, 2-3 mm. wide, sharply toothed, the faces with 2-4 tubercles.—Coastal sand-dunes and shores of bays, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—ORACHE.

3. *SALICORNIA* [Tourn.] L. Fleshy herbs or shrubs. Leaves opposite, mere scales. Flowers perfect or polygamous, in cavities at the rachis-nodes. Calyx fleshy. Utricle included in the spongy perianth.—GLASSWORT. SAMPHIRE.

Annual: stems erect.

1. *S. Bigelovii*.

Perennial: stems decumbent or trailing.

2. *S. ambigua*.

165 1. *S. Bigelovii* Torr. Annual, stout, 1-6 dm. tall: internodes of the inflorescence about as long as thick.—Coastal sand-dunes and shores, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

166 2. *S. ambigua* Michx. Perennial, the decumbent or trailing stems 1-7 dm. long: internodes of the inflorescence 3-4 mm. thick and about as long.—Shores of bays and coastal sand-dunes, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

4. *DONDIA* Adans. Fleshy leafy herbs. Leaves alternate: blades thick or terete, entire. Flowers perfect or polygamous. Sepals hooded, keeled at maturity. Filaments very short.

167 1. *D. linearis* (Ell.) Millsp. Plants glabrous, 1-9 dm. tall, diffusely branched: leaf-blades nearly terete, linear, 1-5 cm. long, acute: seeds about 2 mm. wide, reticulate.—Wet sandy shores, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba.*)—SEA-BLITE.

## FAMILY 2. BASELLACEAE. MADEIRA-VINE FAMILY.

Somewhat succulent vines, with tuber-bearing rootstocks. Leaves alternate: blades relatively broad, entire. Flowers perfect in spike-like



racemes. Calyx of 2 sepals, sometimes winged in fruit. Corolla of 5 often somewhat colored petals. Androecium of 5 stamens borne opposite the petals. Gynoecium 3-carpellary. Ovary superior, 1-celled. Fruit utricular.

1. **BOUSSINGAULTIA** H.B.K. Vines. Leaf-blades of an ovate type, rather fleshy. Racemes axillary and terminal. Sepals 2, nearly flat, not winged. Petals 5, longer than the sepals. Stigmas cleft.

1. **B. leptostachya** Moq. A glabrous much branched vine. Leaf-blades ovate, 2.5-6 cm. long, acute, entire, abruptly narrowed or subcordate at the base: racemes slender, 5-17 cm. long: petals greenish-white or maroon, oval or elliptic-oval, 1.5-2.5 mm. long, spreading in anthesis.—Waste places and roadsides, Key West. Nat. of Trop. Am.—[E. K.]—(*Cuba, Ant.*)—MADEIRA-VINE.

### FAMILY 3. AMARANTHACEAE. AMARANTH FAMILY.

Herbs, shrubs, or trees. Leaves alternate or opposite, estipulate: blades entire or nearly so. Flowers perfect, polygamous, or dioecious, in spikes or panicles with scarious or colored bracts. Calyx of 2-5 mostly distinct sepals. Corolla wanting. Androecium of 5, or fewer, distinct or monodelphous stamens. Gynoecium of 2 or more united carpels. Ovary 1-celled. Fruit a utricle or pyxidium, or rarely baccate.

Anthers 2-celled.

Leaves alternate.

Filaments united at the base: ovules 2-8 in a cavity.

Filaments distinct: ovules solitary in each cavity.

Perianth present in all flowers.

Perianth wanting in plstillate flowers.

Leaves opposite.

Anthers 1-celled.

Stigmas capitate, notched or brush-like.

Stigmas 2-3, subulate or filiform.

Flowers in head-like spikes, perfect.

Flowers in panicles, dioecious.

1. CELOSIA.

2. AMARANTHUS.

3. ACNIDA.

4. ACHYRANTHES.

5. ALTERNANTHERA.

6. PHILOXERUS.

7. IRESINE.

1. **CELOSIA** L. Herbs or shrubs. Leaves alternate: blades mainly entire. Flowers perfect, spicate: sepals 5, scarious. Filaments partially united. Styles united. Ovules 2-8. Utricle circumscissile.

1. **C. paniculata** L. Perennial, glabrous, 1 m. long or more: leaf-blades ovate, deltoid-ovate, or ovate-lanceolate, 1.5-7 cm. long: spikes 1-3 cm. long: sepals oblong, 3.5-4 mm. long: utricle included: seed about 1 mm. long.—Coastal sand-dunes and hammocks, U. S. keys, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

2. **AMARANTHUS** [Tourn.] L. Herbs. Leaves alternate: blades entire. Flowers polygamous, monoecious, or dioecious, densely spicate or clustered, each subtended by mostly 3 bracts. Sepals 2-5. Filaments distinct. Stigmas 2 or 3, distinct. Ovule solitary. Utricle circumscissile, irregularly opening or indehiscent.—AMARANTH. FIGWEED.

Sepals abruptly contracted into narrow claws.

Sepals not abruptly contracted into claws.

Utricle circumscissile.

Stem and branches unarmed, without spines at the leaf-axils.

Stem and branches armed, with spines at the leaf-axils.

Utricle indehiscent.

Flowers, at least the upper ones, in continuous or interrupted spikes.

Flowers in axillary clusters surpassed by the leaves.

1. *A. polygonoides*.

2. *A. hybridus*.

3. *A. spinosus*.

4. *A. gracilis*.

5. *A. crassipes*.

- 172 1. *A. polygonoides* L. Stem and branches 1-5 dm. long: leaf-blades rhombic, ovate or oval, 1-2 cm. long: staminate calyx 0.9-1 mm. long: pistillate calyx 2.2-2.4 mm. long; sepals narrowly cuneate.—Hammocks and open sandy places, U. keys, L. keys.—(*Bah., Cuba, Ant.*)
- 171 2. *A. hybridus* L. Stems 5-25 dm. tall, not spiny: leaf-blades ovate to ovate-lanceolate or elliptic, 3-12 cm. long: staminate calyx 1.7-1.9 mm. long: pistillate calyx 1.7-2 mm. long; sepals narrowly oblong to oblong-lanceolate.—Waste places and cultivated grounds, Key West.—(*Ber., Bah., Cuba, Ant.*)
- 172 3. *A. spinosus* L. Stems 2-12 dm. tall, spiny: leaf-blades ovate, rhombic-ovate, or lanceolate, 1.5-8 cm. long: staminate calyx 2-2.7 mm. long: pistillate calyx 2-2.5 mm. long; sepals broadened upward, abruptly pointed.—Pine-lands and cultivated grounds, U. keys, L. keys. Nat. of Trop. Am.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—THORNY-AMARANTH.
- 173 4. *A. gracilis* Desf. Stems 2-9 dm. tall: leaf-blades ovate or rhombic, 2-6 cm. long: staminate calyx 1.3-1.5 mm. long: pistillate calyx 1.4-1.6 mm. long; sepals broadened upward, and mucronate.—Hammocks and cultivated grounds, L. keys, L. S. keys.—(*Bah., Cuba, Ant.*)
- 174 5. *A. crassipes* Schlecht. Stem and branches 1-6 dm. long, stout: leaf-blades spatulate to ovate, 1-2.5 cm. long: staminate calyx 1.9-2.2 mm. long: pistillate calyx 1.7-2 mm. long; sepals spatulate, abruptly pointed: ovary tuberculate.—Hammocks and waste places, L. keys.—(*Bah., Cuba, Ant.*)

3. *ACNIDA* L. Herbs, mostly annuals and large. Leaves alternate: blades entire. Flowers dioecious, the spike sometimes interrupted, the staminate with 5 sepals and 5 distinct filaments, the pistillate flowers without a perianth.

- 175 1. *A. cuspidata* Bertero. Stems 1.5-7 m. tall, widely branched: leaf-blades lanceolate to elliptic-lanceolate, 10-30 cm. long: staminate calyx about 2 mm. long; sepals oblong to oblong-ovate, mostly obtuse: pistillate calyx 1.7-2 mm. long; sepals lanceolate: utricles 1-1.5 mm. long.—Low hammocks or cultivated grounds, L. keys, L. S. keys.—[E. K.]—(*Ant.*)—WATER-HEMP.

4. *ACHYRANTHES* L. Herbs or woody plants. Leaves opposite: blades entire. Flowers perfect, in slender elongate spikes, commonly deflexed. Sepals 4 or 5, becoming firm. Stamens 5 or rarely fewer. Styles united.

- 176 1. *A. indica* (L.) Millsp. Plants 4-12 dm. tall, finely pubescent: leaf-blades broadly rhombic-ovate to obovate or cuneate, 1-3 cm. long, truncate or retuse at the apex, and abruptly tipped: bracts 2.5-3 mm. long, long-acuminate: sepals lanceolate, 3-4 mm. long: utricle with a sharp rim at the top, about 2 mm. long.—Cultivated grounds and waste places, Key West. Nat. of Asia.—(*Bah., Cuba, Ant.*)

5. *ALTERNANTHERA* Forsk. Herbs (ours perennial). Leaves opposite: blades entire or nearly so. Flowers perfect, in head-like spikes. Sepals 5, unequal. Filaments united at the base. Staminnodia sometimes surpassing the anthers. Styles united.

Staminnodia shorter than the filaments.

Stems pubescent: sepals awn-tipped: staminnodia entire or nearly so.

1. *A. repens*.

Stems glabrous or nearly so: sepals not awn-tipped: staminnodia copiously toothed.

2. *A. polygonoides*.

Staminnodia as long as the filaments or surpassing them.

Spikes sessile or nearly so: calyx sessile: sepals unequal in length.

3. *A. maritima*.

Spikes long-peduncled: calyx pedicelled: sepals, at least 4, nearly equal.

Peduncles shorter than the leaves: sepals glabrous.

4. *A. Moquinii*.

Peduncles surpassing the leaves: sepals pubescent.

Stems minutely pubescent with appressed hairs: anthers on filaments equalling them in length.

5. *A. floridana*.

Stems pubescent with ascending or spreading hairs: anthers sessile or nearly so.

6. *A. brasiliana*.

1. *A. repens* (L.) Kuntze. Plants herbaceous, with prostrate or creeping branches 1-5 dm. long: leaf-blades broadly spatulate, oval or ovate, 8-20 mm. long, usually abruptly pointed: sepals lanceolate or ovate-lanceolate, pubescent, the larger ones becoming about 4 mm. long, abruptly pointed: filaments triangular or lanceolate.—Hammocks and waste places, Key West.—(*Bah., Cuba, Ant.*)

2. *A. polygonoides* (L.) R. Br. Plants similar to *A. repens*, but with less pubescent foliage or glabrate: leaf-blades narrowly spatulate to elliptic, 0.5-2 cm. long, obtuse or acute: sepals oblong to elliptic, glabrous, or sparingly pubescent at the base, the larger ones becoming about 5 mm. long, gradually pointed: filaments subulate.—Hammocks and open sandy places, Key West.—(*Bah., Cuba, Ant.*)

3. *A. maritima* J. St. Hil. Stem and branches prostrate, 2-11 dm. long, glabrous: leaf-blades cuneate, obovate, or elliptic, 1.5-6 cm. long: sepals ovate to ovate-lanceolate, slightly acuminate, glabrous, the outer ones becoming 5 mm. long: staminodia with broad bases.—Coastal sand-dunes and hammocks, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

4. *A. Moquinii* Webb. Stem 3-8 dm. tall, glabrous or nearly so: leaf-blades broadly ovate, 4-8 cm. long: sepals oblong-lanceolate, becoming 3.5 mm. long, glabrous or nearly so.—Sea-shore, Key West.

5. *A. floridana* (Chapm.) Small. Stem and branches diffuse, 6-14 dm. long: leaf-blades lanceolate to elliptic, 1.5-6 cm. long, glabrous or nearly so, at least at maturity: sepals lanceolate, becoming about 4 mm. long, sparingly pubescent.—Hammocks and sandy shores, U. S. keys, U. keys, L. keys.—[E. K.]

6. *A. brasiliana* (L.) Kuntze. Stem 5-20 dm. tall: leaf-blades lanceolate to oblong-lanceolate, 3-10 cm. long: sepals oblong-lanceolate, becoming about 4.5 mm. long, copiously pubescent.—Sandy hammocks and thickets, L. keys, L. S. keys.—(*Ant.*)

6. **PHILOXERUS** R. Br. Herbs with prostrate or creeping branches. Leaves opposite: blades narrow. Flowers perfect, in dense head-like spikes. Sepals 5, very unequal, the outer ones, at least, obtuse. Filaments united at the base. Staminodia wanting.

1. *P. vermicularis* (L.) R. Br. Plant somewhat succulent, the branches 2-18 dm. long: leaf-blades half-terete, linear to clavate, 1-3.5 cm. long: spikes 1-2.5 cm. long, silvery-white: sepals 3.5-4 mm. long, the outer oblong, the inner lanceolate. [*Lithophila vermicularis* (L.) Uline.]—Coastal sand-dunes and damp shores, and waste places, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

7. **IRESENE** R. Br. Herbs with erect stems. Leaves opposite: blades broad. Flowers dioecious, panicleate. Sepals 5, equal, acute or acuminate. Filaments united at the base. Staminodia wanting. Stigmas sessile.

1. *I. paniculata* (L.) Kuntze. Plants 6-12 dm. tall, glabrous: leaf-blades ovate or narrowly lanceolate, 5-10 cm. long: sepals lanceolate or nearly so, 1 mm. long, those of the pistillate flowers woolly without.—Hammocks and sand-dunes, U. S. keys, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

3 4 FAMILY 4. **PHYTOLACCACEAE.** POKEWEED FAMILY.

Herbs, shrubs, or trees. Leaves alternate: blades entire, rather fleshy. Flowers perfect or dioecious, in racemes or panicles. Hypanthium wanting. Calyx of 4 or 5 sepals. Corolla wanting. Androecium of 4-8 stamens, or more, borne below the ovary. Gynoecium 1-many-carpellary, borne in the calyx. Fruit baccate.

Gynoecium 1-carpellary: style single: fruits laterally flattened. 1. RIVINA.  
Gynoecium 2-many-carpellary: styles 2-many: fruits vertically flattened. 2. PHYTOLACCA.

7 1. **RIVINA** [Plum.] L. Relatively small often partially woody plants. Flowers racemose. Sepals narrow, partly enclosing the simple fruit.

185 1. **R. humilis** L. Plants 3-7 dm. tall, or with elongate vine-like stems: leaf-blades ovate, lanceolate, or oblong, 3-15 cm. long, undulate: sepals cuneate to linear-oblong, 2-2.5 mm. long: berries 2-3.5 mm. long, mostly red.—Hammocks and coastal sand-dunes, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

8 2. **PHYTOLACCA** [Tourn.] L. Relatively large or stout plants. Flowers paniculate, the panicles often raceme-like. Sepals broad, spreading under the compound fruit.

186 1. **P. rigida** Small. Plants 1-3 m. tall, or sometimes arborescent and becoming 6 or 7 m. tall, the branches greenish-purple: leaf-blades lanceolate to oblong-lanceolate, 7-34 cm. long: berries 10-12 mm. wide.—Hammocks, U. keys.—[E. K.]—POKE. INK-BERRY.

3 4 FAMILY 5. **PETIVERIACEAE.** PETIVERIA FAMILY.

Woody plants, usually strong-scented. Leaves alternate: blades firm, entire. Flowers perfect, in virgate spikes. Hypanthium present. Calyx of 4 nearly equal sepals. Corolla wanting. Androecium of 4-8 stamens, borne like the calyx on the long hypanthium. Gynoecium a single carpel borne in the hypanthium. Fruit an achene with reflexed spines at the top.

54 1. **PETIVERIA** [Plum.] L. Plants with extensively creeping or horizontal rootstocks. Leaves with narrow stipules. Achenes appressed to the spike-rachis.

187 1. **P. alliacea** L. Stems 3-10 dm. tall, often with virgate branches: leaf-blades obovate, elliptic-obovate, or elliptic, 4-12 cm. long: spikes 1-3 dm. long, interrupted: sepals linear to linear-lanceolate, 3-4 mm. long, about as long as the hypanthium: achenes linear-cuneate, 6-10 mm. long, the spines  $\frac{1}{2}$  as long as the body or less.—Hammocks, U. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

3 4 FAMILY 6. **BATIDACEAE.** SALTWORT FAMILY.

Maritime partially succulent shrubs. Leaves opposite, fleshy, half-terete, linear or clavate, entire. Flowers small, dioecious, in axillary cones. Staminate cones with persistent imbricate scales each subtending a flower: calyx cup-shaped, 2-lobed: stamens 4-5, inserted at the base of the calyx: filaments thick, alternating with staminodia. Pistillate cones peduncled, 4-12-flowered, the scales deciduous: the flowers each consisting of merely a 4-celled ovary with a sessile stigma. Ovule 1 in each cavity. Fruit a fleshy cone.



101. **BATIS** P. Br. Plants with smooth and glabrous foliage. Leaves without stipules.

1. **B. maritima** L. Plant pale-green strong-scented, the stem and branches spreading or prostrate, 0.5-1.5 m. long: leaves curved, 1-2.5 cm. long: cones 5-10 mm. long, ovoid: bracts reniform to suborbicular, often apiculate: fruits oblong or ovoid, 1-2 cm. long, short-stalked, drooping.—Salt or brackish shores, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—SALTWORT.

## FAMILY 7. ALLIONIACEAE. FOUR-O'CLOCK FAMILY.

Herbs with dichotomous stems or shrubs or trees. Leaves opposite: blades entire or nearly so. Flowers mostly perfect, 1 or more in an involucre. Calyx of several united sepals, usually corolloid, deciduous above the ovary. Corolla wanting. Androecium of 1-many stamens, borne below the ovary. Gynoecium a single pistil. Fruit an anthocarp.

Herbs: embryo hooked.

Involucre present, of 3-5, or more, distinct or united bracts.

Stamens 3-6: fruit not subterranean.

Stamens 14-18: fruit subterranean:

Involucre wanting or imperfect.

Shrubs or trees: embryo straight.

Fruits without glands.

Fruits with 5 rows of glands.

1. **MIRABILIS**.

2. **OKENIA**.

3. **BOERHAAVIA**.

4. **TORRUBIA**.

5. **PISONIA**.

1. **MIRABILIS** L. Perennial herbs. Leaves opposite. Flowers typically 1 in an involucre. Calyx salverform, the limb large. Stamens 3-6: filaments united at the base. Fruit of an ovoid type, constricted near the base.

129. 1. **M. Jalapa** L. Plants glabrous, except the young parts: leaf-blades ovate, sometimes broadly so, 3-12 cm. long: involucre 7-8 mm. long; lobes acute: calyx deep-red to purple or white: fruits broadly ovoid.—Cultivated grounds and roadsides, and waste places, Key West. Nat. of Mex.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—FOUR-O'CLOCK.

130. 2. **OKENIA** Schlecht. & Cham. Annual prostrate herbs. Leaves opposite: blades inequilateral. Flowers solitary in the 3-bracted involucre. Calyx short-funnelform, the lobes emarginate. Stamens 14-18: filaments united at the base. Fruit somewhat elongate, bent, 1-striate and transversely wrinkled, subterranean.

131. 1. **O. hypogaea** Schlecht. & Cham. Stem and branches creeping, densely viscid-pubescent, 2-11 dm. long: leaf-blades fleshy, ovate to oblong-ovate, 2.5-4 cm. long, obtuse at the apex, truncate or cordate at the base, stout-petioled: corolla deep-blue or rose-purple, 3-4 cm. wide on young plants, 6-8 mm. wide on mature plants: fruits oblong, 1-1.5 cm. long.—Coastal sand-dunes and hammocks, U. S. keys, U. keys.—(*Mex.*)

3. **BOERHAAVIA** [Vall.] L. Annual or perennial usually diffuse herbs. Leaves opposite: blades often undulate. Flowers subtended by minute bracts. Calyx campanulate to rotate, the tube not prolonged beyond the ovary. Fruit clavate to obovoid, 5-10 ribbed.

Fruits glandular, rounded or acutish at the apex: plants perennial.

Fruits scarcely, if at all, grooved: flower-clusters loosely few-flowered.

Fruits decidedly grooved: flower-clusters many-flowered, often dense.

Fruits glabrous, flat at the apex: plants annual.

1. *B. paniculata*.

2. *B. viscosa*.

3. *B. crecta*.



- 191 1. *B. paniculata* L. C. Rich. Stem branched at the base, the branches diffusely spreading, 6-12 dm. long: leaf-blades ovate to oblong-ovate, 2-8 cm. long, both surfaces of almost the same color: calyx pink or purplish; tube glandular-pubescent; limb campanulate, 1.5 mm. high, glabrous or sparingly pubescent: fruits obpyramidal, 3 mm. long, the ribs glandular, the top rounded.—Pinelands and hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)
- 192 2. *B. viscosa* Lag. & Rodr. Stem widely branched at the base and throughout, the branches spreading in all directions: leaf-blades ovate to oblong, 2-4 cm. long, whitish beneath, becoming glabrous: calyx pink or purple-pink, glandular; limb campanulate, 1-1.5 mm. long: stamens 3, exserted: fruit clavate, 3-3.5 mm. long, acutish.—Hammocks and waste places, L. keys, L. S. keys.
- 193 3. *B. erecta* L. Stem simple below, erect or branched at the base, the branches decumbent or spreading, 3-12 dm. long: leaf-blades ovate to deltoid-ovate, 2-8 cm. long, minutely black-dotted on the lower whitish surface: calyx white or purple; tube glabrous; limb campanulate, 1-1.5 mm. long, sparingly pubescent: fruit obpyramidal, 3.5-4 mm. long, 5-angled, the grooves transversely wrinkled, the top flat.—Cultivated grounds, roadsides and dry sandy places, Key West. Nat. of Trop. Am.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)
4. *TORRUBIA* Vell. Unarmed shrubs or trees. Leaves opposite: blades entire. Flowers in cymes.—BLOLLY.
- Leaf-blades glabrous: inflorescence-branches glabrous in age. 1. *T. longifolia*.  
Leaf-blades copiously pubescent: inflorescence-branches permanently pubescent. 2. *T. floridana*.
- 194 1. *T. longifolia* (Heimerl) Britton. Leaves 3-7 cm. long; blades spatulate to obovate, oblong-spatulate, or oval-spatulate: fruits broadly or narrowly obovoid, 5-6 mm. long.—Hammocks, U. S. keys, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—BEEF-TREE.
- 195 2. *T. floridana* Britton. Leaves 2-3.5 cm. long; blades spatulate: fruits slightly broadened upward, 6-7 mm. long.—Hammocks, Rock Key, west of Key West.—(*Endemic.*)
- 196 5. *PISONIA* [Plum.] L. Armed woody vines, or shrubs or trees. Leaves opposite: blades entire. Flowers in compound cymes.
- Stems mostly climbing, armed: leaf-blades abruptly pointed or short acuminate: fruits glandular from the base to the apex. 1. *P. aculeata*.  
Stems erect, unarmed: leaf-blades blunt or retuse: fruits glandular above the middle. 2. *P. rotundata*.
- 197 1. *P. aculeata* L. Stems with spreading thorn-armed branches: leaf-blades elliptic, oval, or ovate, 2.5-7 cm. long: pedicles slender: calyx-lobes mostly longer than wide: fruits slender, 3-3.5 mm. thick.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—COCK-SPUR.
- 198 2. *P. rotundata* Griseb. Small tree or spreading shrub, the bark pale: leaf-blades thick, broadly oblong or oval, varying to obovate, 2.5-8 cm. long, short-petioled: cymes densely flowered: calyx green or whitish, broadly funnelform, about 3 mm. long, tomentulose along the edge: fruits slender, 2-2.5 mm. thick.—Hammocks, U. keys, L. keys.—(*Bah., Cuba.*)—PISONIA.

#### FAMILY 8. TETRAGONIACEAE. CARPET-WEED FAMILY.

Herbs, firm or succulent, or partially woody plants. Leaves alternate or opposite, sometimes apparently whorled. Flowers mostly perfect or polygamous, regular or nearly so. Calyx of 4 or 5 sepals. Corolla want-  
Flora of Florida Keys 4.

ing (in our species). Androecium of 4 or 5 hypogynous or perigynous stamens, or sometimes fewer or more numerous. Gynoecium of 2—several united carpels. Ovary superior or partly inferior. Fruit a capsule or pyxis, or baccate or nut-like.

Leaves without stipules: ovary 3-5-celled.  
Leaves with stipules: ovary 1- or 2-celled.

1. SESUVIUM.  
2. TRIANTHEMA.

1. **SESUVIUM** L. Annual or perennial succulent herbs, or partially woody plants. Leaves opposite: blades narrow. Sepals 5, petaloid, each horned at the apex. Stamens 1—many, sometimes grouped.

Stamens numerous: plants perennial.  
Stamens 5: plants annual.

1. *S. Portulacastrum*.  
2. *S. maritimum*.

1. ***S. Portulacastrum*** L. Plants usually sparingly branched, the branches often 1–2 m. long: leaf-blades spatulate to oblanceolate or rarely oblong, 1.5–4 cm. long: flowers short pedicelled: sepals 8–10 mm. long: capsule 9–10 mm. long.—Coastal sand-dunes and shores, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Cuba, Ant.*)—SEA-PURLANE.

2. ***S. maritimum*** (Walt.) B.S.P. Plants copiously branched, 0.5–4 dm. long: leaf-blades spatulate to obovate, 1–2.5 cm. long: flowers sessile: sepals 3–4 mm. long: capsules about 5 mm. long.—Sandy shores and waste grounds, L. keys.—(*Bah., Cuba.*)—SEA-PURLANE.

2. **TRIANTHEMA** L. Annual or perennial herbs or woody plants. Leaves opposite: blades broad. Sepals 5, petaloid, each horned at the tip. Stamens 5–10. Stigma lateral on the style. Ovules few.

1. ***T. Portulacastrum*** L. Plants diffusely branched at the base, the branches often 5–10 dm. long: leaf-blades suborbicular to obovate, 0.5–2 cm. long: sepals ovate-lanceolate to oblong, becoming 4–5 mm. long, purple within: capsules 3.5–5 mm. long.—Hammocks and sandy shores, U. keys, L. keys.—(*Ant.*)

#### FAMILY 9. PORTULACACEAE. PURSLANE FAMILY.

Herbs, mostly fleshy or succulent, or partially woody. Leaves alternate or opposite: blades entire. Flowers perfect, regular. Calyx of 2 sepals. Corolla of 4 or 5, or rarely more, fugaceous petals. Androecium of as many stamens as there are petals, or fewer or more. Gynoecium of 3 or more united carpels. Ovary superior or inferior, 1-celled. Fruit a capsule or pyxis.

1. **PORTULACA** [Tourn.] L. Succulent herbs. Leaves flat or terete. Flowers erect. Sepals 2, deciduous. Petals 4–6. Style short; stigmas 3–8, slender.—PURSLANE.

Leaves hairy in the axils; blades terete.

Seeds black, papillose: corolla pink or purple.

Seeds brown, rugulose: corolla yellow.

Leaves glabrous in the axils; blades flat: corolla yellow.

1. *P. pilosa*.  
2. *P. phaeosperma*.  
3. *P. oleracea*.

1. ***P. pilosa*** L. Plants erect or diffuse, the branches villous: leaf-blades terete, 1–2 cm. long: petals pink or purple, 4–6 mm. long: capsules mostly 4–5 mm. long.—Cultivated grounds and roadsides, Key West.—[E. K.]—(*Cuba, Ant.*)

2. ***P. phaeosperma*** Urban. Plants diffusely branched, the young parts pubescent: leaves relatively few; blades nearly terete, 4–13 mm. long: flowers mostly solitary: corolla yellow: capsules 3–4 mm. long: seeds over 0.5 mm. broad, brown.—Pinelands, and sandy shores, and hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

- 202 3. *P. oleracea* L. Plants prostrate: leaf-blades cuneate to obovate, 1-3 cm. long, rounded at the apex: petals yellow, 3-5 mm. long: capsules 5-9 mm. long.—Pinelands, hammocks, waste places, and cultivated grounds, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

### Order RANALES.

Herbs, shrubs, or trees. Leaves mostly without stipules, with entire or dissected blades, in aquatics often various on the same plant. Flowers perfect, monoecious, or dioecious. Calyx and corolla of distinct sepals and petals. Androecium of usually more hypogynous stamens than there are sepals. Gynoecium of 1 or several distinct or united carpels. Ovary superior. Fruit various.

#### 37 FAMILY 1. ANNONACEAE. CUSTARD-APPLE FAMILY.

Shrubs or trees. Leaves alternate: blades entire. Flowers perfect, monoecious, or dioecious. Calyx of 3, or 2, sepals. Corolla of mostly 6 petals much larger than the sepals, those of the inner series smaller than those of the outer, or wanting. Androecium of many stamens, the anthers terminating in a blunt glandular appendage. Gynoecium of few or many distinct carpels. Fruit a simple or aggregate berry.

1. *ANNONA* L. Pungent-aromatic plants. Leaves persistent: blades oblong, oval, or ovate. Petals larger than the sepals, converging. Carpels numerous: style linear. Fruit aggregate.

Petals very broad: fruits not tuberculate.

Sepals over 10 mm. wide: outer and inner petals about equal in length.

1. *A. glabra*.

Sepals less than 9 mm. wide: outer petals much longer than the inner.

2. *A. palustris*.

Petals narrow: fruits strongly tuberculate.

3. *A. squamosa*.

- 1 3 1. *A. glabra* L. Tree becoming 14 m. tall: leaf-blades oblong to oval or ovate, 10-18 cm. long: outer petals 3-3.5 cm. long: filaments 4 mm. long: fruits 8-12 cm. long: seeds 15-20 mm. long.—Hammocks, U. S. keys.—[E. K.]—(*Bah., Cuba.*)—POND-APPLE.

- 104 2. *A. palustris* L. Shrub or small tree: leaf-blades oblong to ovate or oblong-lanceolate, 3-12 cm. long, or rarely larger: outer petals 1.5-2 cm. long: filaments 3 mm. long: fruit 5-7 cm. long: seeds 9-12 mm. long.—Hammocks, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—ALLIGATOR-APPLE.

- 705 3. *A. squamosa* L. Tree with glabrous or nearly glabrous twigs: leaf-blades mainly oblong or elliptic, varying to oblong-lanceolate, mostly 10-15 cm. long, rather slender petioled: sepals broadly deltoid, about 2 mm. long, acute: outer petals narrowly oblong to linear-lanceolate, 24-28 mm. long: berries ovoid to globose-ovoid, 6-10 cm. long, tuberculate, yellowish-green.—Hammocks, U. keys. Nat. of Trop. Am.—(*Cuba, Ant.*)—SUGAR-APPLE. SWEET-SOP.

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### Order PAPAVERALES.

Herbs, shrubs, trees, or vines. Leaves with entire, toothed, dissected, or compound blades. Flowers perfect. Calyx of distinct or nearly distinct sepals. Corolla of distinct or nearly distinct petals, or wanting. Androecium of few or many hypogynous stamens. Androecium of 2-several

united carpels. Ovary superior, sessile or stipitate. Fruit capsular or baccate.

Sepals 2, or very rarely 3 or 4: endosperm present.

Fam. 1. PAPAVERACEAE.

Sepals 4-8: endosperm wanting.

Capsules 2-celled: stamens 6, tetradynamous.

Fam. 2. BRASSICACEAE.

Capsules 1-celled: stamens when 6 not tetradynamous.

Fam. 3. CAPPARIDACEAE.

### FAMILY 1. PAPAVERACEAE. POPPY FAMILY.

Herbs or rarely woody plants, the sap colored. Leaves alternate or opposite: blades entire, toothed, or divided. Flowers perfect, regular. Calyx of 2, or rarely 3, caducous sepals. Corolla of 4, 8 or 12, or rarely more, deciduous petals. Androeceum usually of many distinct stamens. Gynoeceum 2-several-carpellary. Fruit a capsule.

1. **ARGEMONE** L. Herbs. Leaf-blades incised-pinnatifid. Flower-buds erect. Sepals 2 or 3, hooded or horned. Petals 4 or 6, broad. Gynoeceum 4-6-carpellary, the ovary with 4-6 nerviform placenta. Stigma 4-lobed. Capsule elongate.—PRICKLY-POPPY.

Inflorescence, and capsules, spine-awned: petals yellow or white.

Corolla yellow: leaf-blades blotched.

1. *A. mexicana*.

Corolla white: leaf-blades not blotched.

2. *A. alba*.

Inflorescence, and capsules, spineless: petals yellow.

3. *A. leiocarpa*.

70 1. **A. mexicana** L. Plants glaucous, 3-9 dm. tall: leaves 10-25 cm. long; blades runcinate-pinnatifid, blotched, spiny-toothed and commonly spiny along the midrib, sessile and clasping: sepals acuminate and bristle-tipped: corolla yellow, 2.5-7 cm. broad: capsules oblong, 2.5-3 cm. long, spine-armed.—Cultivated grounds and waste places, Key West. Nat. of Mex.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

71 2. **A. alba** Lestib. Plants pale or somewhat glaucous, spine-armed: stems stout, 3-5 dm. tall, often diffuse: leaves 3-15 cm. long; blades pinnately lobed or pinnatifid, sometimes whitish along the veins, the midrib slightly prickly: flowers pedicelled: sepals 1.5-2 cm. long, the terminal spine 1-1.5 mm. long, distinctly flattened: corolla white, 7-10 cm. broad: capsules oval or oblong, 2.5-4 cm. long.—Roadsides, sandy waste places and cultivated grounds, Key West.

72 3. **A. leiocarpa** Greene. Plants resembling those of *A. mexicana* but more glaucous, devoid of spines, except on the margins of the leaf-blades, which are rather more copiously spinescent: calyx unarmed: petals yellow, 3-4 cm. long: capsules smooth and glabrous, 3-4 cm. long.—Hammocks and cultivated grounds, L. keys, L. S. keys.

### FAMILY 2. BRASSICACEAE. MUSTARD FAMILY.

Herbs or partially woody plants, the sap watery. Leaves alternate: blades entire, toothed, or dissected. Flowers perfect, in spikes or racemes. Calyx of 4 mostly erect or appressed sepals. Corolla of 4, usually clawed, petals, or wanting. Androeceum of 6, or rarely 2 or 4, didynamous stamens. Gynoeceum of 2 united carpels. Stigma depressed or 2-lobed. Fruit capsular, elongate (silique) or short (silicle), flat, terete or angled.

Pods flattened contrary to the narrow partition, winged or margined.

1. LEPIDIUM.

Pods not flattened contrary to the partition; neither winged nor margined.

Pods dehiscent lengthwise.

2. SOPHIA.

Pods separating into joints, with transverse partitions.

3. CAKILE.



1. **LEPIDIUM** [Tourn.] L. Herbs. Leaf-blades entire to pinnatifid. Racemes terminal. Sepals 4, spreading. Petals 4, longer than the sepals, or wanting. Stamens usually fewer than 6. Ovule, and seed, 1 in each carpel. Pods suborbicular to oblong.

1. **L. virginicum** L. Stems 2-9 dm. tall: blades of the cauline leaves narrow, sharply toothed or incised: pedicels spreading, 3-4 mm. long at maturity: sepals oblong, about 1 mm. long: petals slightly longer than the sepals: pods 3-4 mm. wide.—Hammocks, pinelands and cultivated grounds, U. keys, L. keys.—[E. K.].—(Ber., Bah., Cuba, Ant.)—PEPPERGRASS.

2. **SOPHIA** Adans. Annual or perennial herbs or shrubby plants, densely fine-pubescent. Leaf-blades 2-pinnatifid or dissected. Sepals 4, early deciduous. Petals 4, yellow or yellowish, slightly longer than the sepals or shorter. Anthers globular to ovoid. Style very short. Pod elongate.

1. **S. pinnata** (Walt.) Britton. Stems 3.5-7 dm. tall, hoary-canescens: leaf-blades 2-3-pinnatifid, the segments linear to oblong-linear: sepals linear to lanceolate, about 1.5 mm. long: petals mainly shorter than the sepals: ovary linear: pods with seeds in 1 row.—Cultivated grounds and waste places, Key West.—TANSY-MUSTARD.

3. **CAKILE** [Tourn.] Ludwig. Chiefly maritime fleshy herbs. Leaf-blades entire to pinnatifid. Sepals 4, succulent. Petals 4, white or purple. Stamens 6: anthers ovoid. Style very short: stigma depressed. Pod of two dissimilar portions.—SEA-MUSTARD. SEA-ROCKET.

Lower joint of the pod 1-seeded.  
Lower joint of the pod 2-seeded.

1. *C. lanceolata*.  
2. *C. fusiformis*.

1. **C. lanceolata** (Willd.) O. E. Schulz. Plants spreading or procumbent: leaves 3-9 cm. long; blades oblanceolate to broadly linear or lanceolate, 3-8 cm. long, entire, crenate or dentate, or some of the lower ones pinnatifid: flowers fragrant: sepals becoming 3.5-4 mm. long: petals 4-7 mm. long: pods 1.7-2 cm. long, the upper joint conic or ovoid-conic.—Coastal sand-dunes and shores, U. S. keys, U. keys, L. keys.—[E. K.].—(Ber., Bah., Cuba, Ant.)

2. **C. fusiformis** Greene. Plants diffuse, rather stout: leaves 5-15 cm. long; blades lacinate-pinnatifid, the segments linear: sepals becoming 4.5-5 mm. long: petals 7-8 mm. long: pods 1.5-2.5 cm. long; the upper joint subulate to lanceolate-subulate.—Sandy shores, L. keys, L. S. keys.

### FAMILY 3. CAPPARIDACEAE. CAPER FAMILY.

Herbs, shrubs, trees, or vines. Leaves alternate or rarely opposite: blades simple or compound. Flowers perfect, in racemes or cymes, or solitary. Calyx of 4 or 5 sepals. Corolla of 4 or 5, often unequal petals. Receptacle often produced into a gland. Androecium of 4-6 stamens, or more. Gynoecium of 2 united carpels. Ovary often stipitate. Fruit capsular, sometimes baccate.

Herbs: fruit a 2-valved capsule.  
Shrubs or trees: fruit baccate.

1. **CLEOME**.  
2. **CAPPARIS**.

1. **CLEOME** L. Herbs. Leaf-blades 3-7-foliolate. Sepals 4, spreading. Petals 4, white or pink, nearly equal, long-clawed. Gland wanting. Stamens 12-32: anthers oblong. Ovary long-stipitate: style almost wanting. Capsules linear.



1. *C. gynandra* L. Stems 5–10 dm. tall; leaflets 2–6 cm. long; blades oval to obovate, serrulate; bracts suborbicular, oval, or broadly obovate; sepals lanceolate, 4–5 mm. long; petals 5–10 cm. long; blades suborbicular; capsules 4–6 cm. long. [*Pedicellaria pentaphylla* (L.) Schrank.]—Cultivated grounds and waste places, Key West.—(Ber., Bah., Cuba, Ant.)

2. *CAPPARIS* [Tourn.] L. Shrubs, trees, or vines. Leaf-blades simple, entire. Sepals 4 or 5, often spreading or deflexed. Petals 4 or 5, sessile. Receptacle unappendaged. Stamens numerous; anthers oblong to linear. Ovary long-stipitate; style wanting. Fruit sometimes baccate, often torulose.—CAPER-TREE.

Foliage glabrous: leaf-blades reticulate: sepals imbricate: capsules glabrous.

Foliage scaly: leaf-blades not reticulate: sepals valvate:  
capsules scaly.

1. *C. cynophallophora*.

2. *C. jamaicensis*.

1. *C. cynophallophora* L. A shrub or a small tree: leaf-blades oblong to oblong-cuneate, mainly 5–8 cm. long: sepals suborbicular; corolla 5.5–7.5 cm. wide: fruit-body mostly 10–20 cm. long.—Coastal sand-dunes and shores of bays, and hammocks, U. keys, L. keys.—[E. K.]—(Bah., Cuba, Ant.)—BAY-LEAVED CAPER-TREE.

2. *C. jamaicensis* Jacq. A shrub or small tree: leaf-blades elliptic, oblong, or oval, mainly 4–10 cm. long: sepals lanceolate to ovate-lanceolate: corolla about 3 cm. wide: fruit-body mostly 20–30 cm. long.—Coastal sand-dunes and hammocks, U. keys, L. keys.—[E. K.]—(Bah., Cuba, Ant.)—JAMAICA CAPER-TREE.

### Order ROSALES.

Herbs, shrubs, or trees, or rarely aquatic plants or vines. Leaves with simple or compound blades. Flowers mostly perfect. Calyx and corolla present and sometimes irregular, or the latter occasionally, or both rarely wanting. Androeceum of few or many stamens. Gynoeceum of 1–several distinct or united carpels. Fruit various.

Flowers regular or nearly so (actinomorphic).

Succulent plants.

Woody plants or wiry-stemmed herbs.

Leaf-blades simple: fruit a drupe.

Leaf-blades compound: fruit a legume.

Flowers irregular (zygomorphic).

Upper petals enclosed by the lateral ones in the bud.

Upper petal enclosing the lateral ones in the bud.

Fam. 1. SEDACEAE.

Fam. 2. AMYGDALACEAE.

Fam. 3. MIMOSACEAE.

Fam. 4. CASSIACEAE.

Fam. 5. FABACEAE.

### FAMILY 1. SEDACEAE. ORPINE FAMILY.

Herbs, usually succulent, or partially woody plants. Leaves alternate, opposite, or whorled: blades thick, flat to terete. Flowers perfect or dioecious, cymose. Calyx of usually 4–6 persistent sepals. Corolla of as many petals as sepals, or wanting. Androeceum of as many stamens as sepals or twice as many. Gynoeceum of as many distinct or partially united carpels as there are sepals, or fewer. Fruit follicular.

1. *BRYOPHYLLUM* Salisb. Perennial coarse herbs. Leaf-blades simple or pinnately compound. Flowers perfect, borne in simple or compound cymes. Calyx 4-lobed. Corolla exerted, 4-lobed. Follicles 4.

1. *B. pinnatum* (Lam.) S. Kurz. Plants 4–15 dm. tall, often glaucous: leaves 1–3 dm. long; blades of the leaflets oblong to elliptic, crenate: panicles

1-4 dm. long: calyx becoming 3-3.5 cm. long: corolla reddish, longer than the calyx; lobes lanceolate to narrowly ovate.—Hammocks and cultivated grounds. L. keys. Nat. of Asia.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—LIFE-PLANT.

## FAMILY 2. **AMYGDALACEAE.** PLUM FAMILY.

Shrubs or trees. Leaves alternate, with free, often early deciduous stipules: blades simple, mostly toothed. Flowers perfect, in corymbs, cymes, racemes, or panicles, sometimes clustered. Calyx of 5 sepals, borne on the edge of the hypanthium, deciduous. Corolla of 5 petals. Androeceium of many stamens. Gynoeceium of a single carpel, or rarely of 2 or 3 carpels. Ovary 1-celled: style entire. Fruit a drupe.

Style basal: ovules erect.

Inflorescence axillary: drupe with a fluted stone.

Inflorescence terminal: drupe with a terete stone.

Style terminal: ovules pendulous.

1. **CHRYSOBALANUS.**

2. **GEOBALANUS.**

3. **LAUROCERASUS.**

1. **CHRYSOBALANUS** L. Shrubs or trees. Leaf-blades of an orbicular or obovate type. Cymes axillary. Petals clawed. Filaments distinct or nearly so. Stone of the fruit pointed at the base, ridged.

1. **C. Icaco** L. Shrub, when growing on beaches, with radially creeping branches, or a tree sometimes 10 m. tall: leaf-blades broadly obovate to orbicular-obovate, mostly 4-8.5 cm. long, typically retuse: sepals about 2.5 mm. long: drupes globose or spheroidal, 3-4 cm. long, yellow, red, or purple: stone broadly obovoid, blunt-ridged.—Hammocks, U. S. keys, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—COCOA-PLUM.

2. **GEOBALANUS** Small. Shrubs, with underground stems. Leaf-blades more elongate than in *Chrysobalanus*: cymes terminal. Petals not clawed. Filaments markedly united. Stone of the fruit terete, not pointed at the base.

1. **G. oblongifolius** (Michx.) Small. Plants 1-3 dm. tall: blades of the upper leaves oblanceolate to oblong, 3-12 cm. long, glabrous, obtuse or retuse and mucronate: drupes ovoid to obovoid.—Coastal sand-dunes, U. S. keys.—GOPHER-APPLE. GROUND-OAK.

## FAMILY 3. **MIMOSACEAE.** MIMOSA FAMILY.

Herbs, shrubs, or trees. Leaves alternate: blades compound, usually 2-3-pinnate: stipules sometimes spine-like. Flowers mostly perfect, borne in capitate or elongate usually dense spikes or racemes. Calyx of 3-6 partially united sepals. Corolla of 3-6 equal, distinct or partially united petals. Androeceium of 3-6, or many, stamens which are usually conspicuously exserted. Gynoeceium 1-carpellary. Fruit a legume.

Stamens numerous, more than 10.

Filaments partially united into a tube.

Valves of the pod not separating from the continuous margin.

Pods with thick-leathery valves, contorted.

Pods with thin-leathery valves, not contorted.

Valves of the pod separating from the continuous margin.

Filaments distinct, or the inner ones sometimes slightly united at the base.

1. **PITHECOLOBIUM.**

2. **ALBIZZIA.**

3. **LYSILOMA.**

4. **VACHELLIA.**

Stamens as many as the petals or the corolla-lobes or twice as many.

Anthers without glandular appendages at the top.

Shrubs or trees: seeds transverse in the pod.

Herbs: seeds lengthwise or oblique in the pod.

Anthers, at least in the bud, topped by glandular appendages.

5. *LEUCAENA*.

6. *ACUAN*.

7. *NEPTUNIA*.

1. **PITHECOLOBIUM** Mart. Shrubs or trees. Leaves 2-pinnate: leaflets few, often 4. Spikes capitate. Calyx-lobes minute. Corolla prominently lobed. Pods narrow, often pulpy within. Seeds with colored arils.

Ovary glabrous, shorter than the stipe: petioles larger than the petiolules.

1. *P. Unguis-Cati*.

Ovary pubescent, larger than the stipe: petioles shorter than the petiolules.

2. *P. guadelupensis*.

1. **P. Unguis-Cati** (L.) Benth. Unarmed shrub or small tree: blades of the leaflets thinnish, broadly obovate, oval, or suborbicular, 1–4.5 cm. long: calyx 1.5–2 mm. long; lobes wider than long, blunt: corolla 3.5–4.5 mm. long: pods long-stipitate.—Coastal sand-dunes and hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—CAT'S-CLAW.

2. **P. guadelupensis** Chapm. Armed shrub or small spreading tree: blades of the leaflets leathery, oblong to oblong-obovate, 2–5.5 cm. long, acute: calyx 2.5–3 mm. long; lobes longer than wide, acute: corolla 5–6 mm. long: pods short stipitate.—Hammocks, pinelands and coastal sand-dunes, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—BLACK-BEAD.

2. **ALBIZZIA** Durazz. Shrubs or trees. Leaves 2-pinnate: leaflets numerous. Spikes capitate. Calyx-lobes relatively short and small. Corolla twice as long as the calyx. Pod linear, flat.

1. **A. Lebbek** (Willd.) Benth. Tall tree: leaves with 4–8 pinnae; leaflets 10–22, the blades oblong to oblong-obovate, 2–5.5 cm. long, acute: calyx about 4 mm. long: corolla 9–11 mm. long; larger lobes lanceolate: pods linear, 15–40 cm. long: seeds oval, 6–7 mm. wide.—Hammocks and about gardens, L. keys. Nat. of Africa.—(*Bah., Cuba, Ant.*)—WOMAN'S-TONGUE TREE.

3. **LYSILOMA** Benth. Shrubs or trees. Leaves 2-pinnate: leaflets numerous. Spikes capitate. Calyx-lobes relatively long. Corolla slightly longer than the calyx. Pod oblong to linear.

1. **L. bahamensis** Benth. Tree becoming 20 m. tall, with spreading branches: leaves with 4–8 pinnae; leaflets 20–40; blades oblong to oblong-lanceolate, 8–11 mm. long: calyx about 2 mm. long: corolla 2.5–3 mm. long; lobes ovate: pods oblong, 8–15 cm. long, long-stipitate.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba.*)—WILD-TAMARIND.

4. **VACHELLIA** Wight & Arn. Shrubs or small trees. Leaves 2-pinnate: leaflets numerous, small. Spikes globose. Calyx-lobes minute, relatively short. Corolla about twice as long as the calyx; lobes short. Filaments distinct. Pod very turgid.

1. **V. Farnesiana** (L.) Wight & Arn. Shrub with diffuse branches, or small tree: leaf-pinnae 8–16; leaflets 20–50, the blades linear-oblong, 2–4 mm. long: calyx about 1.5 mm. long: corolla 2–2.5 mm. long: pods 3–7.5 cm. long.—Pinelands and hammocks, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—YELLOW-OPONAX.

5. **LEUCAENA** Benth. Shrubs or trees. Leaves mostly 2-pinnate: leaflets often small and numerous. Spikelets capitate. Calyx-lobes minute. Petals

distinct, or rarely slightly coherent. Filaments distinct or nearly so. Pod linear, flat.

72 1. *L. glauca* (L.) Benth. Shrub, or tree becoming 10 m. tall: leaflets 6-12 mm. long; blades narrowly oblong to lanceolate, over 1.5 mm. wide: calyx 2-2.5 mm. long or rarely shorter: petals 4-4.5 mm. long: pods 10-15 cm. long.—Hammocks, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—LEAD-TREE.

6. *ACUAN* Medic. Perennial herbs, often somewhat woody near the base. Leaves 2-pinnate: leaflets small, numerous. Spikes capitate. Calyx-lobes minute. Petals distinct, sometimes clawed. Filaments distinct. Pod flattish.

Gland between the lower pair of pinnae orbicular: pods 3-5.5 cm. long. 1. *A. depressa*,  
Gland between the lower pair of pinnae oblong: pods 6-8 cm. long. 2. *A. virgata*.

75 1. *A. depressa* (H.B.K.) Kuntze. Stems 3-8 dm. long: blades of leaflets narrowly oblong, 2-5 mm. long: calyx 1.5-2 mm. long: petals 2.5 mm. long; blades spatulate: pods 3-5.5 mm. long.—Pinelands and open sandy places, L. keys.—(*Bah., Cuba, Ant.*)

7 2. *A. virgata* (L.) Medic. Stems 3-11 dm. long: blades of the leaflets linear to oblong, 4-8 mm. long: calyx about 2.5 mm. long: petals about 3 mm. long; blades spatulate: pods 6-8 cm. long.—Hammocks and cultivated grounds, U. keys.—(*Ber., Bah., Cuba, Ant.*)

7 NEPTUNIA Lour. Perennial unarmed diffuse, prostrate, or floating plants. Leaves 2-pinnate: leaflets numerous, small or minute. Spikes globose or cylindric. Calyx-lobes shorter than the tube. Petals distinct or partially united. Filaments distinct or nearly so. Ovary short-stipitate. Pod oblique.

7 1. *N. floridana* Small. Stem and branches sparingly pubescent or glabrate: leaflets 3-4 mm. long; blades linear to linear-lanceolate: calyx-lobes triangular-lanceolate, acuminate: petals acuminate: pods 2.5-3.5 cm. long.—Pinelands, L. keys.—[E. K.]—(*Cuba.*)

#### FAMILY 4. CASSIACEAE. SENNA FAMILY.

Trees, shrubs, or herbs. Leaves alternate: blades compound, usually 1-2-pinnate, rarely 1-foliolate. Flowers perfect, polygamous, monoecious, or dioecious, more or less irregular. Calyx of 3-5, usually slightly united sepals, sometimes borne on the edge of a well-developed hypanthium. Corolla of 3-5 unequal distinct petals. Androeceum of 6-10 distinct or nearly distinct stamens. Gynoeceum 1-carpellary. Fruit a legume.

Sepals, and petals, usually 5: stamens 5-10.

Leaves with 1-pinnate blades.

Pods indehiscent or tardily dehiscent: corolla nearly regular, the five petals slightly unequal: calyx-lobes obtuse. 1. CASSIA.

Pods elastically dehiscent: corolla very irregular, one of the lateral petals (standard) and the lowest petal large, the others greatly reduced: calyx-lobes acuminate. 2. CHAMAECRISTA.

Leaves with 2-pinnate blades.

Pods long, smooth: standard with a suborbicular or reniform blade.

Leaf with a very short petiole which ends in a spine, each division with a long flat phyllode-like rachis. 3. PARKINSONIA.

Leaf with a decided petiole, the rachises not phyllode-like.

Calyx-lobes valvate.

Calyx-lobes imbricate.

4. DELONIX.

- Petals, except the standard, sessile or with very short claws. 5. *CAESALPINIA*.  
 Petals, except the standard, long-clawed. 6. *POINCIANA*.  
 Pods short, prickly-armed: standard with a cuneate or spatulate blade. 7. *GULLANDINA*.  
 Sepals 4: petals 3, often accompanied by 2 rudiments: stamens 3. 8. *TAMARINDUS*.

1. **CASSIA** [Tourn.] L. Herbs, shrubs, or trees. Leaves abruptly 1-pinnate: stipules deciduous. Flowers in axillary racemes or panicles. Sepals nearly distinct, leathery or petaloid. Petals mainly yellow or whitish. Pod more or less turgid, indehiscent or tardily dehiscent.—*SENNA*.

Plants herbaceous.

Petiolar gland near the base of the rachis: blades of the leaflets not obovate. 1. *C. occidentalis*.

Petiolar gland between the lower pair of leaflets: blades of the leaflets obovate or cuneate. 2. *C. Tora*.

Plants woody. 3. *C. bahamensis*.

278 1. *C. occidentalis* L. Plant annual, 5–15 dm. tall, nearly glabrous: leaflets 8–12; blades lanceolate, becoming lanceolate-elliptic, somewhat acuminate, 3.6–5 cm. long; petiolar gland globular, near the base of the rachis: stipules broadly lanceolate: sepals 11–14 mm. long: petals 15–19 mm. long: pods linear, glabrous, with the septa externally prominent, 8–13 cm. long, 6 mm. wide.—Pinelands and cultivated grounds, L. keys. Nat. of Trop. Am.—[E. K.] —(*Ber., Bah., Cuba, Ant.*)

445 2. *C. Tora* L. Plant annual, 4–15 dm. tall, nearly glabrous: leaflets 4–6; blades obovate or cuneate-obovate, very slightly cuspidate, the terminal pair much the largest, 3–5 cm. long: petiolar gland elongate, between the lower pairs of leaflets: stipules linear-spatulate to setaceous: sepals 7–9 mm. long, the larger ones ovate: petals 13–15 mm. long, very diverse in shape: pods falcate, more or less tetragonal, 3–4 mm. wide.—Pinelands and waste grounds, L. keys. Nat. of Trop. Am.—[E. K.] —(*Bah., Cuba, Ant.*)

73 3. *C. bahamensis* Mill. Plant woody: leaflets 6–10; blades subcoriaceous, ovate or acutely elliptical, mucronate, 3.5–5 cm. long: petiolar gland depressed, between the lower pairs of leaflets to near base of rachis: stipules ovate to lanceolate: sepals 7–12 mm. long: petals 15–20 mm. long, or sometimes smaller: pods flat, with lateral depressions between the seeds, 9–11 cm. long, 5 mm. wide.—Pinelands, L. keys.—[E. K.] —(*Bah., Cuba.*)

2. **CHAMAECRISTA** Moench. Herbs or shrubs. Leaves abruptly 1-pinnate: stipules persistent. Flowers clustered in leaf-axils. Sepals nearly distinct, membranous. Petals mainly yellow or whitish. Pod flattish, promptly dehiscent, the valves elastic.—*SENSITIVE-PEA*. *SENSITIVE-PLANT*.

Corolla large, over 2 cm. broad.

Tall woody plant: smaller petals over 1.5 cm. long: pods glabrous. 1. *C. brachiata*.

Low or diffuse, partly woody plant: larger petals less than 1.5 cm. long: pods pubescent. 2. *C. grammica*.

Corolla small, less than 1.5 cm. broad.

Stem and branches erect or ascending: leaflets mostly 40–54. 3. *C. aspera*.

Stem and branches prostrate or decumbent: leaflets mostly 16–34. 4. *C. Simpsonii*.

232 1. *C. brachiata* Pollard. Stem 2 m. tall or less, often widely branched above: leaflets 20–28; blades linear, cuspidate, glabrous, midvein somewhat excentric: petiolar gland much depressed, discoid: stipules lanceolate: sepals 15–20 mm. long, glabrous or nearly so: standard 17–24 mm. long: pods 6–7 cm. long, glabrous, often conspicuously banded.—Pinelands, L. keys.—[E. K.]

2. *C. grammica* (Spreng.) Pollard. Stem densely pubescent: leaflets 6–16; blades elliptic, oblong, or obovate, mucronate, subcoriaceous, canescent beneath,



1 cm. long, or less: petiolar gland obsolescent, compressed: stipules aculeate: sepals 11–12 mm. long: standard 12–14 mm. long: pods copiously pubescent, 3–4 cm. long, 4 mm. wide.—Pinelands, L. keys.—(*Cuba, Ant.*)

732 3. *C. aspera* (Muhl.) Greene. Stem copiously hirsute, erect or ascending: leaflets 40–54; blades narrowly linear, 15 mm. long or less, acuminate: petiolar gland slender, erect, elongate: stipules linear-lanceolate: sepals 5–7 mm. long, sparingly long-hairy: standard somewhat reniform, crenate, only about  $\frac{1}{2}$  as long as the large wing-petal: pod hirsute, 2.8 cm. long, 6 mm. wide.—Pinelands and edges of hammocks, L. keys.—[E. K.]—(*Bah.*)

734 4. *C. Simpsonii* Pollard. Stem branching from the base, the branches prostrate, with scattered appressed or lax short hairs, or somewhat hirsute: leaflets mostly 16–34; blades narrowly linear, 10 mm. long or less, often lustrous, glabrous or obscurely ciliolate, slightly veiny, each with a firm, often dark, spine-like tip: leaf-rachis glabrous or with few short hairs, mostly devoid of glands, except the obconic or clavate petiolar gland: stipules linear-lanceolate, glabrous or nearly so: sepals 5–6 mm. long: standard obovate or flabellate, 4–7 mm. long: pods linear, 2–2.5 cm. long, short-hirsute or glabrous.—Pinelands, L. keys.—[E. K.]

3. **PARKINSONIA** L. Shrubs or trees, with simple or branching thorns. Leaflets numerous, borne on the phyllode-like rachises. Blades of the short-clawed petals mainly of an ovate type. Pod markedly tortulose, the swollen portions nearly terete.

735 1. *P. aculeata* L. Shrub or small tree: leaves 2–4 dm. long, the rachis winged; leaflets numerous, distant, the blades linear to linear-oblancoate, 1–10 mm. long: sepals oblong, 8–10 mm. long: petals 10–17 mm. long; blades except that of the standard, oval or ovate: pods 5–10 cm. long, acuminate.—Hammocks, cultivated grounds and roadsides, Key West. Nat. of Trop. Am.—HORSEBEAN. RETAMA. JERUSALEM-THORN.

4. **DELONIX** Raf. Unarmed trees with smooth bark. Leaflets relatively small and numerous: blades narrow. Sepals much shorter than the petals. Blades of the petals mainly flabellate, all long-clawed. Pod elongate-linear, flat, the valves woody.

736 1. *D. regia* (Boj.) Raf. Tree or shrub with a wide top: larger leaves with 20–50 pinnae; leaflets numerous, the blades linear-oblong, 4–10 mm. long: sepals 22–26 mm. long: petals 5–7 cm. long, red or orange; blades broader than long, crisped: pods linear, commonly 3–5 dm. long.—Roadsides and cultivated grounds, L. keys.—(*Cuba, Ant.*)—ROYAL-POINCIANA. FLAME-TREE. PEACOCK-FLOWER.

5. **CAESALPINIA** L. Erect unarmed or slightly armed shrubs or trees. Leaflets usually few and relatively large: blades rather broad. Sepals slightly shorter than the petals. Blades of the short-clawed petals not flabellate, often obovate. Pod flat, narrow, the valves leathery. Seeds flattened.

737 1. *C. pauciflora* (Griseb.) C. Wright. Shrub 2 m. tall or less: leaflets glabrous, mostly 6–12 on each pinnae; blades oblong to obovate, 6–12 mm. long: sepals 8–10 mm. long: corolla mainly yellow; standard 8–10 mm. long: filaments 8–11 mm. long: pods oblong-elliptic, 2–3.5 cm. long.—Pinelands, L. keys.—(*Cuba, Ant.*)

6. **POINCIANA** [Tourn.] L. Erect much-branched shrubs or trees. Leaflets usually few and relatively large: blades rather broad. Sepals much shorter than the petals. Blades of the petals, except the standard, flabellate. Pod flat, narrow, the valves leathery. Seeds flattened.

7 16 1. *P. pulcherrima* L. Shrub or small tree: leaflets glabrous; blades oblong to cuneate, 15-25 mm. long: sepals 15-16 mm. long: corolla mainly red; standard 25-27 mm. long: filaments 40-45 mm. long: pods 9-13 cm. long.—Pinelands and cultivated grounds, Key West. Nat. of the W. Indies.—[E. K.]—(*Bah., Cuba, Ant.*)—BARBADOS-FLOWER. DWARF-POINCIANA.

7 17 7. *GUILANDINA* L. Reclining or spreading prickly shrubs. Leaflets relatively few or numerous and large: blades broad. Sepals as long as the petals or nearly so. Blades of the narrow petals mainly spatulate. Pod nearly as wide as long, turgid. Seeds turgid.—NICKER.

Leaves with foliaceous stipules: seeds gray or lead-colored.

1. *G. Crista*.

Leaves without stipules: seeds yellow.

Leaflet-blades neither rounded nor retuse: corollas 2.5 cm. wide or more.

2. *G. Bonduc*.

Leaflet-blades rounded or retuse: corollas less than 2 cm. wide.

3. *G. ovalifolia*.

7 18 1. *G. Crista* (L.) Small. Straggling or spreading shrub: leaflets numerous; blades ovate, oblong-ovate, or nearly oblong, 1.5-3.5 cm. long, mucronate: racemes or panicles 1-4 dm. long: sepals 9-11 mm. long, mostly obtuse: petals dull-yellow, the narrower ones 10-13 mm. long, truncate and 3-toothed at the apex: pods oval or oval-oblong, 5-7 cm. long.—Coastal sand-dunes and shore hammocks, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—GRAY-NICKER.

7 19 2. *G. Bonduc* L. Plants similar to *G. Crista* in habit, but leaflets relatively larger: sepals mostly acute: narrower petals rounded and merely uneven at the apex.—Coastal sand-dunes and shore hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—YELLOW-NICKER.

7 20 3. *G. ovalifolia* (Urban) Britton. Straggling shrub with curved or hooked prickles, the foliage minutely pubescent. Leaves 1-2 dm. long or more: leaflets numerous; blades oval or suborbicular, varying to ovate or obovate, mostly 1-2 cm. long, rounded or retuse and mucronate at the apex: corolla light-yellow, less than 1.5 cm. wide: pods obovate, 6-8 cm. long, prickly all over: seeds yellow or yellowish.—Hammocks, L. keys.—(*Bah.*)

8. *TAMARINDUS* [Tourn.] L. Unarmed trees. Leaves relatively small: leaflets numerous. Sepals 4. Petals 3, often with 2 additional rudiments. Stamens 3, the filaments united to about the middle, alternating with 3 minute staminodia. Ovary elongate: pod indehiscent, succulent within.

7 21 1. *T. indica* L. Tree with spreading branches: leaflets 18-36, 1-2 cm. long, the blades oblong to linear-oblong, becoming reticulate: sepals 10-12 mm. long: petals yellowish or reddish, 13-16 mm. long, crisped: pod thick, 6-13 cm. long, more or less curved, the edges rounded.—Hammocks and cultivated grounds, U. keys, L. keys. Nat. of the E. Indies.—[E. K.]—(*Bah., Cuba, Ant.*)—TAMARIND.

#### FAMILY 5. FABACEAE. PEA FAMILY.

Herbs, shrubs, trees, or vines. Leaves alternate: blades 1-compound, 1-many-foliolate, or rarely simple. Flowers mostly perfect, irregular. Calyx of 5 more or less unequal partially united sepals. Corolla of 5 (or of 1 petal in *Amorpha*), unequal distinct or nearly distinct petals which are 2 keel-petals, 2 wings, and 1 standard which surrounds the others. Androeceum of 10 monodelphous, diadelphous or rarely distinct stamens, or rarely 9 or 5. Gynoeceum 1-carpellary. Ovary superior. Fruit a dehiscent or indehiscent legume, or a loment.

|   |       |                   |
|---|-------|-------------------|
| Stamens 10: filaments distinct.   | TRIBE | I. SOPHOREAE.     |
| Stamens 10 or fewer: filaments monadelphous or diadelphous.   |       |                   |
| Leaves destitute of tendrils.   |       |                   |
| Herbs or shrubs, or trees or woody vines with 1-foliolate or pinnate leaf-blades.                     |       |                   |
| Fruit 2-valved or indehiscent, not a loment.  |       |                   |
| Foliage not glandular-dotted.   |       |                   |
| Anthers of 2 kinds: filaments monadelphous.   | TRIBE | II. GENISTEAE.    |
| Anthers all alike: filaments diadelphous at least beyond the middle.                                  |       |                   |
| Leaf-blades 3-foliolate.  | TRIBE | III. TRIFOLIEAE.  |
| Leaf-blades pinnately several-many-foliolate.   |       |                   |
| Pods dehiscent.   | TRIBE | IV. GALEGEAE.     |
| Pods indehiscent.   | TRIBE | V. DALBERGIEAE.   |
| Foliage glandular-dotted.   | TRIBE | VI. PSORALEAE.    |
| Fruit a loment.   | TRIBE | VII. HEDYSAREAE.  |
| Herbaceous vines, or herbs with stipellate leaflets, or shrubs or trees with 3-foliolate leaf-blades. |       |                   |
| Leaves bearing tendrils.  | TRIBE | VIII. PHASEOLEAE. |
|   | TRIBE | IX. VICIEAE.      |

## TRIBE I. SOPHOREAE.

Inflorescence racemose: pods moniliform.

1. SOPHORA.

## TRIBE II. GENISTEAE.

Stipules at least the upper ones decurrent: pods inflated.

2. CROTALARIA.

## TRIBE III. TRIFOLIEAE.

Pods coiled, firm-walled: flowers in spikes or racemes.

3. MEDICAGO.

Pods straight, fragile-walled: flowers in heads.

4. TRIFOLIUM.

## TRIBE IV. GALEGEAE.

Leaf-blades unequally pinnate: calyx prominently lobed: petals short-clawed or sessile.

5. INDIGOFERA.

Leaf-blades equally pinnate: calyx obscurely lobed: petals long-clawed.

6. AGATI.

## TRIBE V. DALBERGIEAE.

Leaf-blades 1-foliolate: pods wingless.

Calyx not 2-lipped: standard flabellately veined, long-clawed.

7. DALBERGIA.

Calyx prominently 2-lipped: standard pinnately veined, short-clawed.

8. AMERIMNON.

Leaf-blades pinnately several-foliolate: pods winged.

9. ICHTHYOMETHIA.

## TRIBE VI. PSORALEAE.

Perennial caulescent herbs, with glandular foliage and densely spicate flowers.

10. PETALOSTEMON.

## TRIBE VII. HEDYSAREAE.

Corolla yellow: flowers monoecious.

11. STYLOSANTHES.

Corolla white, blue, violet, or purple: flowers perfect.

12. MEIBOMIA.

## TRIBE VIII. PHASEOLEAE.

Keel of the corolla neither curved nor coiled.

Standard not spurred at the base.

Corolla yellow.

Ovules, and seeds, 2 or 3.

13. DOLICHOLUS.

Ovules, and seeds, several.

14. CAJAN.

Corolla blue, purple, scarlet, or white.

Pod terete, torulose: corolla scarlet.

15. ERYTHRINA.

Pod flattened, not torulose: corolla blue, purple, or white.

16. GALACTIA.

Standard with a spur at the base of the blade.

17. BRADBURYA.

Keel of the corolla coiled or curved.

Keel spirally twisted.

Keel incurved.

Inflorescence capitate.

Inflorescence racemose or paniculate.

Upper calyx-lip shorter than the lower: keel angled: style pubescent.

Upper calyx-lip longer than the lower: keel curved: style glabrous.

18. PHASEOLUS.

19. VIGNA.

20. DOLICHOS.

21. CANAVALL.

#### TRIBE IX. VICIEAE.

Plants with tendrils on the leaves: style with a tuft of hairs at the apex.

22. Vicia.

**1. SOPHORA** L. Shrubs, trees, or herbs. Leaf-blades several-foliolate. Racemes erect. Calyx nearly equally 5-lobed or truncate. Standard markedly clawed. Wings and keel-petals auricled on one side. Pod thick. Seeds thick.

**1. S. tomentosa** L. Shrub, with copiously pubescent foliage: blades of the leaflets oblong, oblong-ovate, or oval, or rarely spatulate, 2.5-6 cm. long, finely pubescent beneath: calyx 5-8 mm. long, the limb undulate: corolla yellow, 18-25 mm. long: blades of the wings and the keel-petal narrowly oblong: pods 5-11 cm. long, torulose.—Coastal sand-dunes and hammocks, U. S. keys, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

**2. CROTALARIA** [Dill.] L. Herbs. Stipules often decurrent on the stem or branches. Leaf-blades 3-foliolate or 1-foliolate. Calyx with a prominently 2-lobed upper lip and a deeply 3-lobed lower lip. Corolla yellow or blue: standard with a pair of callosities near the base of the blade: wings with the scarcely auricled blades broadened upward: blades of the keel-petals broadly scythe-shaped. Pods globular to cylindric.—RATTLE-BOX.

Leaves with 1-foliolate blades.

Standard with a blade much less than 2 cm. wide: blades of the upper leaflets of a linear-oblong or lanceolate type: stipules more or less decurrent.

Leaflets with orbicular or oval blades predominating: stems decumbent or prostrate.

Leaflets with linear blades predominating: stems erect or nearly so.

Standard with a blade nearly or quite 2 cm. wide: blades of the upper leaflets of a spatulate or oblanceolate type: stipules not decurrent.

Leaves with 3-foliolate blades.

Plants annual: lobes of the lower calyx-lip longer than the tube: pods 2.5-3.5 cm. long.

Plants perennial: lobes of the lower calyx-lip shorter than the tube: pods 1-1.5 cm. long.

1. *C. maritima*.

2. *C. Purshii*.

3. *C. sericea*.

4. *C. incana*.

5. *C. pumila*.

**1. C. maritima** Chapm. Stems radiating from a stout root: blades of the lower leaflets suborbicular to oval; of the upper ones narrower: calyx appressed-pubescent: standard 9-12 mm. long.—Pinelands, L. keys.—[E. K.]

**2. C. Purshii** DC. Plants 1-5 dm. tall, the branches sometimes decumbent: blades of the lower leaflets spatulate to oblanceolate; of the upper ones linear, often very narrowly so: calyx becoming 11-14 mm. long: standard 8-10 mm. long; keel 7-8 mm. long: ovary glabrous.—Pinelands, L. keys.—[E. K.]

**3. C. sericea** Retz. Plants stout, the stem erect, finely pubescent: blades of the leaflets often bristle-tipped: stipules broad: calyx 16-18 mm. long; lower lip longer than the tube; lobes lanceolate: corolla yellow; petals pubescent near the base, the standard with a suborbicular blade about 2 cm. in diameter: pods slightly broadened upward, 3-5 cm. long. [*C. spectabilis* Roth.]—Cultivated grounds and roadsides, Key West. Nat. of the E. Indies.—(*Ant.*)

**4. C. incana** L. Plants erect: blades of the leaflets oval to obovate: calyx becoming 10-12 mm. long: keel 14-16 mm. long: ovary pubescent.—Pinelands cultivated grounds, and waste places, U. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

745 5. **C. pumila** Ortega. Plants decumbent; blades of the leaflets cuneate to oblong-cuneate: calyx becoming 4-5.5 mm. long: keel 8-10 mm. long: ovary pubescent.—HAMMOCKS and pinelands, and coastal sand-dunes, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

746 3. **MEDICAGO** L. Annual or perennial herbs, or partially woody plants. Leaflets 3, broad. Racemes capitate or slightly elongate. Calyx-lobes nearly equal, about as long as the tube or longer. Corolla yellow or violet: wings with a hooked auricle at the base of the blade. Style very short, at least shorter than the ovary.—MEDIC.

746 1. **M. lupulina** L. Stem and branches prostrate: leaflets 5-15 mm. long; blades obovate or rhomboidal: calyx 1.5-2 mm. long: corolla yellow; standard 1.5-2 mm. long: pods 2-2.5 mm. broad.—Waste places and cultivated grounds, Key West. Nat. of Eu.—(*Ber.*)—NONESUCH. BLACK-MEDIC.

747 4. **TRIFOLIUM** L. Annual or perennial herbs. Leaflets 3, broad or narrow, or rarely 5 or 7. Calyx-lobes nearly equal, or the 2 upper longer than the three lower ones and sometimes partially united. Corolla variously colored or white: standard oblong or obovate, or elongate and clawed: other petals with long claws, the wings with an angle or a rounded auricle at the base of the blade.—CLOVER. TREFOIL.

756 1. **T. arvense** L. Stems erect, villose-lanuginous: leaflets 1-2.5 cm. long; blades linear to oblanceolate, entire or nearly so: calyx 4.5-5 mm. long; lobes subulate, plumose: corolla whitish; standard nearly oblong, 3-3.5 mm. long, white: pods about 1.5 mm. long.—Cultivated grounds and waste places, Key West. Nat. of Eu.—RABBIT-FOOT CLOVER. STONE-CLOVER.

757 5. **INDIGOFERA** L. Herbs. Leaflets several to many or rarely 3, or rarely solitary. Flowers in spikes or racemes. Calyx-lobes nearly equal, shorter than the tube, or elongate. Corolla often pink or purple: standard broad, scarcely clawed: wings with blades dilated at the apex and auricled at the base, short-clawed: keel-petals scimitar-shaped, gibbous or spurred on the side, clawless.—INDIGO-PLANT.

Stems and branches prostrate or decumbent: calyx-lobes long and narrow, all longer than the tube.

Standard ovate or rhombic, 7-8 mm. long: pods straight: plants silvery-silky.

Standard suborbicular or reniform, 3-4 mm. long: pods curved: plants green.

Stems erect: calyx-lobes broad and short, the broader ones, at least, shorter than the tube.

1. *I. miniata*.

2. *I. keyensis*.

3. *I. tinctoria*.

251 1. **I. miniata** Ortega. Stems prostrate: leaflets 5-9; blades linear-oblong to narrowly oblanceolate: calyx about 3 mm. long; lobes subulate or lanceolate-subulate: standard 7-8 mm. long or rarely smaller; the wings usually longer: pods oblong-linear or linear, 15-20 mm. long.—Pinelands and sandy places, L. keys.—[E. K.]—(*Cuba.*)

752 2. **I. keyensis** Small. Stems decumbent: leaflets 7-9; blades oblong-obovate to cuneate: calyx 2-3 mm. long; lobes subulate: standard 3-4 mm. long; wings mostly 3-4 mm. long: pods linear, 3-3.5 mm. long.—HAMMOCKS, U. keys.

753 3. **I. tinctoria** L. Stems erect: leaflets 7-11; blades oblong, oval or obovate: calyx 1.5-2 mm. long; lobes deltoid to triangular-lanceolate: standard 4-5 mm. long; the wings about the same length: pods linear, 2.5-3 cm. long.—Cultivated grounds and waste places, Key West. Nat. of Asia.—(*Cuba, Ant.*)



6. **AGATI** Adans. Trees or shrubs, but short-lived. Leaflets numerous. Racemes 2-4-flowered. Calyx slightly 2-lipped, but usually with very broad lobes. Corolla large, pinkish or red: standard with an oblong or ovate blade: wings not auricled: keel-petals merely angular at the base of the blade. Pods greatly elongate, straight or nearly so.

1. **A. grandiflora** (L.) Desv. Shrub or small tree: leaves 1-3 dm. long; leaflets numerous, the blades oblong to linear-oblong, 2-4 cm. long; calyx 2-2.5 cm. long: standard 6-10 cm. long, the blade ovate: pods elongate-linear, 2-4 dm. long.—Hammocks and cultivated grounds, Key West. Nat. of the E. Indies.—(Bah., Cuba, Ant.)—AUSTRALIAN CORKWOOD-TREE.

7. **DALBERGIA** L. f. Shrubs. Leaflets solitary, very broad. Racemes short. Calyx not 2-lipped, the 5 broad lobes short. Corolla white or pink: standard with a suborbicular or reniform blade and a long claw. Free portions of the filaments long. Pod lenticular.

1. **D. Ecastophyllum** (L.) Taub. Shrub with wide-spreading or trailing branches: leaflets 5-15 cm. long; blades ovate, oblong, or elliptic: calyx campanulate, becoming 3.5-4 mm. long: corolla white or pink; standard 3-9 mm. long, the blades suborbicular: pods suborbicular, 2-3 cm. in diameter.—Coastal sand-dunes and hammocks, U. S. keys, U. keys, L. keys.—[E. K.]—(Bah., Cuba, Ant.)

8. **AMERIMNON** Jacq. Shrubs. Leaflets solitary. Racemes short. Calyx 2-lipped: upper lip with 2 broad lobes; lower lip with 2 short lateral lobes and a long middle one. Corolla white or pink: standard with an obovate or cuneate blade and a short claw. Filaments and ovary as in *Dalbergia*. Pod more or less elongate, stipitate.

1. **A. Brownei** Jacq. Shrub with reclining or trailing branches: leaflets mostly 4-6 cm. long; blade ovate or oblong-ovate, thick: calyx 4-5 mm. long; lateral lobes of the lower lip ovate; middle lobe lanceolate: standard 8-10 mm. long; blade obovate to cuneate: pods 2-5 cm. long; body oval to oblong, sometimes constricted between the seeds. [*Dalbergia Amerimnum* Benth.]—Hammocks, U. keys.—(Cuba, Ant.)

9. **ICHTHYOMETHIA** P. Br. Trees. Leaflets several, pinnate. Panicles thyrsoid. Calyx slightly 2-lipped, the upper lip notched: lower lip of three broad lobes about equal in length. Corolla white or partially colored: standard with a broad blade cordate at the base, and a short claw. Pods narrow, 4-winged.

1. **I. piscipula** (L.) A. Hitchc. Tree: leaflets 7-9; blades oval or obovate, or nearly ovate, 2-10 cm. long, undulate or shallowly toothed: calyx campanulate, 6-7 mm. long: petals white and partially striped with red: standard 14-16 mm. long, the blade suborbicular: pods 5-10 cm. long, the wings undulate or incised.—Hammocks, U. keys, L. keys.—[E. K.]—(Bah., Cuba, Ant.)—JAMAICA-DOGWOOD.

10. **PETALOSTEMON** Michx. Herbs. Leaflets few or numerous. Spikes dense. Calyx-lobes broad, or broad at the base. Standard with a short broad blade. Filaments united to above the middle. Pod short, oblique, included in the calyx.

1. **P. carneus** Michx. Plants 3-10 dm. tall: leaflets 5-7; blades linear, linear-elliptic, or linear-oblong, 5-10 mm. long; calyx 3-3.5 mm. long: corolla

deep-pink: standard about 4 mm. long; blade oval: blades of the other petals elliptic-oblong to narrowly oblong.—Sand-dunes, U. S. keys.—[E. K.]—PRAIRIE-CLOVER.

11. **STYLOSANTHES** Sw. Herbs. Leaflets 3, pinnate. Flowers of two kinds, the one complete, but sterile, the other without a perianth, but fertile. Calyx 2-lipped: upper lip with 2 broad lobes; lower lip with the middle lobe longer and narrower than the lateral ones. Corolla yellow or orange, persistent: standard with a very broad blade: blades of the wings and the keel-petals auricled, the latter incurved. Loment flat, 1- or 2-jointed, the lower joint empty, the upper one opening at the apex.

1. **S. hamata** (L.) Taub. Plants decumbent or procumbent: leaflets 7–17 mm. long; blades oblong to oblong-lanceolate: calyx 2–2.5 mm. long: standard 4–5 mm. long: pods 2-jointed, the lower joint usually abortive, the terminal one with 1-ribbed sides and a hooked beak.—Pinelands, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

12. **MEIBOMIA** Heister. Herbs, shrubs, or vines. Leaflets 3, or rarely 1 or 5. Racemes simple or compound. Calyx 2-lipped, sometimes obscurely so, the middle lobe of the lower lip often smaller or narrower and longer than the lateral ones. Corolla variously colored or white: standard with a broad blade: blades of the wings and the keel-petals auricled on one side, short-clawed. Ovary slender. Loment few-several-jointed, usually with hooked hairs.—TICK-TREFOIL.

1. **M. obtusa** (Muhl.) Vail. Stems short-hirsute or minutely pubescent: leaflets 1–2 cm. long; blades orbicular-ovate to oval, or suborbicular, sparingly pubescent, especially beneath: lateral calyx-lobes deltoid, acute, the lower lobe lanceolate: standard 4–5 mm. long: stipe of the loment  $\frac{1}{4}$  as long as the joints: joints mostly 2 or 3.—Pinelands, L. keys.—[E. K.]—BEGGAR'S-TICKS.

13. **DOLICHOLUS** Medic. Herbs or vines. Leaflets 3 or 1. Flowers perfect and complete. Calyx 2-lipped, the 2 upper lobes more or less united. Corolla yellow: blade of the standard broadened upward: blades of the wings unequally auricled on both sides, the auricles angular: blades of the keel-petals much longer than wide. Pod flat, short.

Corolla much longer than the calyx.

Blades of the leaflets obtuse or merely acute: standard short-clawed.

Racemes very slender, many-flowered, exceeding the leaves: flowers and legumes reflexed.

Racemes 1–6-flowered, as long as the leaves or shorter.

Blades of the leaflets acuminate: standard long-clawed.

Corolla about as long as the calyx or shorter.

1. *D. minimus*.
2. *D. parviflorus*.
3. *D. Swartzii*.
4. *D. cinerea*.

1. **D. minimus** (L.) Medic. Stems minutely pubescent: leaflets 0.8–4 cm. long; blades of the lateral ones semi-rhombic, that of the terminal one rhombic-orbicular: lower calyx-lobe subulate: standard 5–6 mm. long; blade orbicular-cuneate: auricles of the wings acute.—Pinelands and thickets, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

2. **D. parviflorus** (DC.) Vail. Stems grayish-tomentose: leaflets 1.5–3.5 cm. long; blades elliptic to elliptic-lanceolate or sometimes broader: lower calyx-lobe linear-lanceolate: standard 7–8 mm. long; blade suborbicular: auricles of the wings obtuse.—Pinelands, L. keys.—[E. K.]—(*Cuba.*)

3. **D. Swartzii** Vail. Stems pubescent: leaflets 3–6 cm. long; blades ovate, acuminate, softly pubescent: calyx-lobes lanceolate, unequal, the two upper

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ones united above the middle: standard 6.5–7 mm. long: pods 25–30 mm. long.—Hammocks, U. keys, L. keys.—(*Bah., Cuba, Ant.*)

76 4. *D. cinereus* (Nash) Vail. Stems cinereous-pubescent: leaflets 1–3 cm. long; blades obliquely orbicular to ovate-orbicular or depressed: lateral calyx-lobes lanceolate, markedly shorter than the lower one; lobes of the upper calyx-lip lanceolate: standard 6–7 mm. long: pods 14–17 mm. long.—Pinelands, L. keys.—[E. K.]

14. *CAJAN* Adans. Partially woody herbs. Leaflets 3. Racemes few-several-flowered. Calyx somewhat 2-lipped, the upper lobes partially united. Corolla yellow or mainly so: blade of the standard suborbicular, sharp-aureicled at the base: blades of the wings rather prominently, but unequally auricled on each side: blades of the keel-petals broad at the apex. Pod turgid, elongate.

76 1. *C. Cajan* (L.) Millsp. Plants 3–30 dm. tall, velvety-tomentose: leaflets mainly 4–12 cm. long; blades narrowly elliptic or oblong, acute or short-acuminate, pale and prominently veined beneath: calyx 8–14 mm. long: standard-blade 16–20 mm. long: pods narrowly oblong to linear-oblong.—Pinelands and cultivated grounds, U. keys, L. keys. Nat. of Old World Tropics.—[E. K.]—(*Bah., Cuba, Ant.*)—CONGO-PEA. PIGEON-PEA.

15. *ERYTHRINA* L. Herbs, shrubs, or trees. Leaflets 3. Racemes several-many-flowered. Calyx obliquely truncate. Corolla red, scarlet, or crimson: standard conspicuous, erect, narrowed upward: wings and keel-petals very small, nearly equal in size, the blades short-clawed. Androecium exserted: filaments united to about the middle or slightly above it. Pod torulose.

76 1. *E. arborea* (Chapm.) Small. Shrub, or tree 3–8 m. tall: blades of the leaflets deltoid to hastate: racemes few-flowered: calyx cylindric: standard 35–40 mm. long; blade about 1 cm. wide; wing-petals 11–12 mm. long: pods 9–13 cm. long: seeds scarlet.—Hammocks, L. keys.—[E. K.]—CORAL-BEAN.

16. *GALACTIA* P. Br. Vines, or erect partially woody plants. Leaflets 3, or rarely 1, 5, or 7. Panicles raceme-like. Calyx 2-lipped, the lobes relatively long. Corolla violet red, or white: standard erect or spreading: wings and keel-petals with relatively short claws. Pod turgid, elongate.—MILK-PEA.

Standard not striped: upper calyx-lobe triangular to lanceolate.

Stem and branches reclining or prostrate.

Stem and branches twining.

Standard striped: upper calyx-lobe broadly ovate.

1. *G. floridana*.

2. *G. parvifolia*.

3. *G. spiciformis*.

76 1. *G. floridana* T. & G. Stems hoary-pubescent: leaflets 1.5–4.5 cm. long; blades oval or oblong-oval: flowers scattered nearly the length of the rachis: calyx 7–8 mm. long; lateral lobes acuminate: keel-petals 10–11 mm. long: pods 4–5 cm. long.—Pinelands and hammocks, U. keys, L. keys.—[E. K.]

2. *G. parvifolia* A. Rich. Stems minutely pubescent: leaflets mostly 1–4 cm. long; blades various, linear, varying to broadest above or below the middle, or those of the lower leaves broader, varying from ovate or oval to obovate, all thin or thinnish, usually faintly veined: calyx 5–8 mm. long: keel-petals 6.5–8 mm. long: pods 3.5–4.5 mm. long.—Pinelands and hammocks, L. keys.—[E. K.]—(*Cuba.*)

76 3. *G. spiciformis* T. & G. Stems retrorse-pubescent: leaflets 2.5–8 cm. long; blades oblong, oblong-oval, or elliptic: calyx 5–6 mm. long: standard 9–10 mm. long; blade auricled at the base: keel-petals 8–9 mm. long: pods 4–5 cm. long.—Hammocks and pinelands, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba.*)

17. **BRADBURYA** Raf. Vines. Leaflets 3, or 5 or 7. Racemes few-flowered. Calyx 2-lipped, the upper lip shorter than the lobes of the lower lip, which are much longer than the tube. Corolla pink, blue, violet, or white: blade of the standard suborbicular or reniform: wings and keel-petals with short claws, the blades of the latter strongly curved, narrower than those of the former, and with a prominent auricle at the base. Pod elongate, long-beaked, its margins thickened.

1. **B. virginiana** (L.) Kuntze. Leaflets 3-11 cm. long; blades linear, often narrowly so and elongate, to ovate, with distinct scalloped marginal veins: upper calyx-lobes nearly as long as the lower ones, like the lateral ones of the lower lip, setaceous-subulate: blade of the standard 21-25 mm. wide: seeds less than 3 mm. long.—Pinelands and hammocks, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—BUTTERFLY-PEA.

18. **PHASEOLUS** [Tourn.] L. Vines or diffuse plants. Leaflets 3 or rarely 1. Racemes or panicles simple or branched. Calyx short and very broad, 2-lipped, the upper lip entire or broadly 2-lobed, the lower lip 3-lobed. Corolla variously colored: blades of the wings much smaller than that of the standard, short-clawed: blades of the keel-petals not dilated at the base, short-clawed. Style curved. Seeds with rounded ends.

1. **P. lunatus** L. Stems twining or rarely erect: leaflets 3, the blades 4-9 cm. long, triangular or rhombic, mostly acute: panicles elongate, raceme-like, many-flowered: middle lobe of the lower calyx-lip broadly deltoid: standard greenish-white; blade 7-10 mm. wide: wings 8-10 mm. long: pods broad, scimitar-shaped.—Hammocks and cultivated grounds, U. keys. Nat. of Eu.—(*Bah., Cuba, Ant.*)—LIMA-BEAN.

19. **VIGNA** Savi. Vines. Leaflets 3. Racemes or panicles cluster-like. Calyx slightly 2-lipped, the upper lip broad, shorter than the lower lip, the middle lobe of the lower lip slightly larger than the lateral ones. Corolla yellow or purple: blades of the wings and the keel-petals very broad, those of the latter with an angular or reflexed auricle at the base. Pod narrow.

1. **V. repens** (L.) Kuntze. Plants pubescent: leaflets 2-8 cm. long; blades ovate to lanceolate or linear: calyx 7-9 mm. long; lobes acute: corolla yellow; standard-blade 18-23 mm. wide; keel 16-19 mm. long, nearly as long as the wings: pods 4-6 cm. long.—Cultivated grounds and waste places, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

20. **DOLICHOS** L. Herbs resembling *Phaseolus*, and with a similar calyx. Corolla with a prominently appendaged standard, very broad wings and narrow keel-petals which are bent at right-angles, but not coiled. Pods linear to scimitar-shaped.

1. **D. Lablab** L. Leaflets 5-13 cm. long; blades broadly ovate, or that of the terminal one ovate-reniform, acute or short-acuminate: bracts ribbed: calyx 9-11 mm. long; lobes of the lower lip lanceolate or oblong-lanceolate: corolla purple, violet or white; blade of the standard 16-21 mm. wide; wings 17-21 mm. long: pods oblong, 6-8 cm. long, toothed-margined: seeds 10-13 mm. long, each with a white scar.—Hammocks and pinelands, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—HYACINTH-BEAN. BLACK-BEAN. EGYPTIAN-BEAN.

21. **CANAVALI** Adans. Vines. Leaflets 3. Racemes or panicles mostly erect. Calyx prominently 2-lipped, the upper lip very broad: longer than the



lower lip, the 2 lobes broadly rounded, the lower lip with 3 small lobes. Corolla variously colored or white, often conspicuous: blades of the wings and keel-petals narrow, those of the latter with a prominent upcurved auricle at the base. Pod broad.

1. *C. lineata* (Thunb.) DC. Leaflets 4-10 cm. long; blades leathery, sub-orbicular to oval or obovate: calyx sparingly pubescent; lower lobes obtuse: corolla pink or rose-purple: pods 10-12 cm. long. [*C. obtusifolia* (Lam.) DC.]—Coastal sand-dunes and sandy shores, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

22. *VICIA* [Tourn.] L. Trailing or climbing herbs. Leaflets few or many: blades entire, or toothed at the apex. Racemes few-many-flowered, usually 1-sided. Calyx more or less 2-lipped: lobes of the lower lip usually longer than those of the upper. Corolla variously colored or white: blades of the wings more prominently auricled than those of the keel-petals. Filaments united to near the tips. Style with a tuft of hairs at the apex, or pubescent on the side opposite the keel. Pods relatively flat.

1. *V. acutifolia* Ell. Leaflets 2-6, usually 4; blades linear to linear-oblong, acute or mucronate: calyx-lobes triangular, the lower one longer than the lateral ones: standard 8-9 mm. long: keel about 6 mm. long: pods 2.8-3 cm. long.—Lime-sinks, L. keys.—[E. K.]—VETCH.

### Order GERANIALES.

Herbs, shrubs, or trees. Leaves alternate or opposite: blades simple or compound. Flowers perfect, monoecious, or dioecious, mostly regular. Calyx of distinct sepals. Corolla of distinct or nearly distinct petals, or rarely wanting. Androecium of as many stamens as there are sepals or twice as many, or rarely more. Gynoecium of 2 or several united carpels. Ovary superior. Fruit various.

Plants destitute of secreting glands or cells in the tissues.

Sepals without dorsal glands.

Styles distinct, or partly united, the tips and the stigmas distinct.

Leaves simple: stamens 5.

Leaves compound: stamens 10-15.

Styles and stigmas permanently united.

Sepals bearing 1 or 2 dorsal glands.

Plants with secreting glands, these often in the leaves, or only in the bark.

Filaments distinct, nearly or quite to the base.

Leaf-blades punctate by oil-glands.

Leaf-blades not punctate.

Gynoecium of distinct carpels.

Gynoecium of more or less united carpels.

Bitter-barked shrubs or trees with oil-sacs in the bark.

Resiniferous shrubs or trees.

Filaments united into a cup or tube, wholly or in part.

Fam. 1. LINACEAE.

Fam. 2. OXALIDACEAE.

Fam. 3. ZYGOPHYLLACEAE.

Fam. 4. MALPIGHIACEAE.

Fam. 5. RUTACEAE.

Fam. 6. SURIANACEAE.

Fam. 7. SIMAROUBACEAE.

Fam. 8. BURSERACEAE.

Fam. 9. MELIACEAE.

### FAMILY 1. LINACEAE. FLAX FAMILY.

Herbs or woody plants. Leaves alternate or opposite: blades simple. Flowers perfect, regular. Calyx of 4-6 deciduous or persistent sepals. Corolla of 4-6 epimeral petals. Receptacle glandular. Androecium of 4-6 stamens, often with staminodia: filaments united at the base. Gynoecium



of 2-5 partially united carpels, the styles wholly or partially distinct. Fruit capsular.

1. **CATHARTOLINUM** Reichenb. Herbs. Leaves alternate or occasionally opposite, sometimes with stipular glands. Sepals 5, the inner ones at least with gland-tipped teeth. Petals yellow, sometimes pubescent within near the base. Androecium of 5 stamens, generally without staminodia. Styles 5, distinct or united. Capsule 5-celled, or completely or incompletely 10-celled by false partitions.—FLAX.

775 1. **C. arenicola** Small. Stems 2-7 dm. tall, corymbose above: leaves alternate, erect or ascending; blades subulate or subulate-acicular, mostly less than 1 cm. long: outer sepals broadly oblong to oblong-ovate, 2.5-3 mm. long: capsules spheroidal, about 2 mm. broad.—Pinelands, L. keys.—[E. K.]—YELLOW-FLAX.

## FAMILY 2. OXALIDACEAE. WOOD-SORREL FAMILY.

Herbs or rarely shrubs, the sap sour. Leaves mostly alternate: blades 3-several-foliate or 1-foliate, the leaflets commonly notched at the apex. Flowers perfect, essentially regular, cymose. Calyx of 5 persistent sepals. Corolla of 5 white or colored petals. Androecium of 10-15 unequal stamens: filaments partially united. Gynoecium of 5 partially united carpels: styles distinct. Fruit a loculicidal capsule, or rarely baccate.

1. **XANTHOXALIS** Small. Herbs. Leaf-blades palmately 3-foliate: leaflets notched at the apex. Flowers in umbel-like or dichotomous cymes. Sepals 5, not tubercle-bearing. Petals broadened upward. Filaments usually unappended. Capsule elongate, erect.

777 1. **X. corniculata** (L.) Small. Stem and branches 5-40 cm. long, with spreading hairs: leaflets deep-green; blades 5-12 mm. broad, or larger, ciliate: sepals 3-4 mm. long: petals 7-10 mm. long. Hammocks and pinelands, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—SOUR-GRASS. YELLOW WOOD-SORREL.

## FAMILY 3. ZYGOPHYLLACEAE. CALTROP FAMILY.

Shrubs, trees or perennial herbs. Leaves opposite or alternate by the suppression of one of each pair: blades compound. Flowers perfect. Calyx of 4-6, mostly 5, sepals. Corolla of 4-6, mostly 5, petals, or rarely wanting. Androecium of twice as many stamens as there are sepals. Gynoecium of 2-4-united carpels. Fruit capsular, sometimes baccate at maturity, sometimes separating into nut-like carpels.

Herbs: corolla yellow or red.

Nutlets 5, each with 3-5 one-seeded compartments: fruits spiny.

Nutlets 8-10, each 1-seeded: fruits tuberculate.  
Shrubs or trees: corolla blue or purple.

1. **TRIBULUS**.
2. **KALLSTROEMIA**.
3. **GUAIACUM**.

1. **TRIBULUS** L. Diffuse herbs. Leaves pubescent. Sepals 5, deciduous. Petals white or yellow. Filaments unappended. Fruit spiny.

778 1. **T. cistoides** L. Branches diffusely procumbent, pubescent: leaves 2-6 cm. long; leaflets 12-16, the blades oblong or elliptic: sepals lanceolate, 8-11 mm. long, acuminate: petals broad, 2-2.5 cm. long, bright-yellow: stamens shorter than the petals: mature carpels 8-9 mm. long.—Hammocks and waste places, U. keys, L. keys, L. S. keys. Nat. of Trop. Am.—(*Bah., Cuba, Ant.*)—BUR-NUT. CALTROP.

2. **KALLSTROEMIA** Scop. Herbs resembling *Tribulus*. Sepals 5, persistent. Petals yellow or red. Filaments unappendaged. Fruit uneven or tuberculate.

1. **K. maxima** (L.) T. & G. Branches prostrate or procumbent, 2-6 dm. long or longer, appressed-pubescent and often somewhat hirsute: leaflets usually 6-8, the blades of the terminal pair 9-18 mm. long, oblong or oval, often curved: sepals lanceolate, 3-4 mm. long: petals obovate, 6-8 mm. long: fruit 7-10 mm. long, the conic beak slightly longer than the body, the carpels tuberculate and cross-ridged.—(*Bah., Cuba, Ant.*)—CALTROP.

3. **GUAIACUM** L. Shrubs or trees. Leaves relatively large, persistent, the leaflets but little longer than wide. Sepals 5 or rarely 4, unequal. Petals blue or purple. Filaments unappendaged. Fruit angled or winged.

1. **G. sanctum** L. Shrub or tree, sometimes 10 m. tall, the bark pale: leaves 5-10 cm. long; leaflets 6-10, the blades broadly oblong to obovate, 2-3.5 cm. long: sepals obovate to oblong-obovate, 6-7 mm. long: corolla 2-2.5 cm. wide; petals broadly obovate: fruit obovoid, 15-17 mm. long, orange or greenish-yellow.—Hammocks, U. keys, L. keys.—(*Bah., Cuba, Ant.*)—LIGNUM-VITAE.

#### FAMILY 4. MALPIGHIACEAE. MALPIGHIA FAMILY.

Shrubs or trees, or partially woody herbs or vines. Leaves opposite: blades simple. Flowers usually perfect, sometimes cleistogamous. Calyx of 5, often gland-bearing, sepals. Corolla of 5 usually clawed petals, or wanting. Androeceium of 5-10 perfect or partially sterile stamens. Gynoeceium of 2-4, usually 3, distinct or united carpels. Fruit drupaceous, capsular, or nut-like.

1. **BYRSONIMA** L. C. Rich. Shrubs or trees. Flowers in terminal racemes or panicles. Petals white, reddish, or purplish, reflexed. Stigmas acute. Carpels permanently united.

1. **B. lucida** (Sw.) DC. Evergreen shrub, 3-18 dm. tall, or a small tree: leaf-blades spatulate to obovate-spatulate, 2-4 cm. long, lustrous above: racemes 2-4 cm. long: petals white, turning yellow or rose, 7 mm. long, the blades reniform: drupes 9-12 mm. in diameter or rarely smaller.—Hammocks and low pinelands, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—LOCUSTBERRY.

#### FAMILY 5. RUTACEAE. RUE FAMILY.

Shrubs or trees, or rarely herbs, often prickly-armed, and with glandular-punctate tissues. Leaves alternate or opposite: blades simple or pinnately compound, sometimes 1-foliolate. Flowers perfect or polygamous, mostly regular. Calyx of 3-5, or rarely more, sepals, or wanting. Corolla of 3-5, or rarely more, petals. Androeceium of as many stamens as there are sepals or petals or rarely twice as many. Gynoeceium of 2-5 distinct or united carpels. Fruit capsular, samaroid, drupaceous, or baccate.

Fruit dry, capsular or follicular.

Fruit fleshy, drupaceous or baccate.

Fruit a drupe: ovary 1-celled.

Fruit a berry: ovary 2-many-celled.

Stamens 8 or 10: carpels 1-ovuled.

Stamens 20 or more: carpels several-ovuled.

1. ZANTHOXYLUM.

2. AMYRIS.

3. GLYCOSMIS.

4. CITRUS.

**1. ZANTHOXYLUM** [Catesby] L. Shrubs or trees. Leaf-blades pinnate, sometimes 1-foliate. Flowers polygamous, in short axillary spikes, or in terminal corymb-like panicles or cymes. Sepals present or wanting. Petals 3-5, mostly erect. Mature carpels solitary, or 2-5 together. [*Fagara* L.]

Flowers in short, axillary spikes: sepals, and petals, 4: seeds usually less than 3 mm. wide.

Flowers in terminal corymb-like panicles or cymes: sepals,

and petals, 3 or 5: seeds over 3 mm. wide.

Sepals, and petals, 3: leaf-blades equally pinnate.

Sepals, and petals, 5: leaf-blades unequally pinnate.

1. *Z. Fagara*.

2. *Z. coriaceum*.

3. *Z. flavum*.

**1. Z. Fagara** (L.) Sarg. Shrub, or tree sometimes 10 m. tall, the trunk slender, often reclining: leaves 2.5-11 cm. long, the rachis winged; blades of the lateral leaflets mostly obovate to oval, 1-2.5 cm. long, shallowly crenate: petals 1.5-2 mm. long, or larger: mature carpels subglobose, 3.5-4 mm. long: seeds 2-2.5 mm. wide.—Hammocks, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—WILD-LIME.

**2. Z. coriaceum** A. Rich. Shrub, or tree becoming 7 m. tall: leaves 6-15 cm. long; blades of the leaflets leathery, rigid, obovate to cuneate or oblong with acuminate base, 2-6 cm. long: petals 2-3 mm. long: mature carpels 5-6 mm. long: seeds about 3.5 mm. wide.—Hammocks, U. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—HERCULES'-CLUB.

**3. Z. flavum** Vahl. Shrub or tree sometimes 12 m. tall, the twigs stellate-canescens: leaves 9-25 cm. long, the rachis terete; blades of the lateral leaflets mostly oblong or ovate, 3.5-10 cm. long: mature carpels obovoid, 5-9 mm. long.—Hammocks, U. keys, L. keys.—(*Ber., Bah., Cuba, Ant.*)—YELLOW-WOOD.

**2. AMYRIS** [P. Br.] L. Shrubs or trees. Leaf-blades pinnate, often 1-foliate, the petiole wingless. Flowers perfect or polygamous, paniculate. Sepals 4 or 5. Petals 4 or 5, very small. Ovary 1-celled. Drupe with a single seed.

**1. A. elemifera** L. Shrub, or tree becoming 17 m. tall: leaflets 3 or 5; blades ovate to rhombic-ovate, 2-8 cm. long: petals 2.5-3.5 mm. long: drupes 4-8 mm. long, black beneath the bloom.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—TORCHWOOD.

**3. GLYCOSMIS** Correa. Shrubs or trees. Leaf-blades 1-several-foliate, leaflets mostly entire. Flowers perfect, relatively small. Sepals nearly distinct. Petals 5, elongate. Ovary 2-5-celled: styles very short. Ovules solitary in each cavity. Berry globular, the pulp very thin.

**1. G. pentaphylla** (Retz.) DC. Shrub 1-4 m. tall, or small tree: leaves 1-5-foliate; leaflets elliptic to oblong, or broadest above the middle, 8-16 cm. long, glabrous: sepals orbicular to oval, 1-2 mm. long: petals oblong sometimes broadly so, 3-4 mm. long: filaments clavate: berries 7-10 mm. in diameter, white or pink.—Hammocks, Key West. Nat. of the E. Indies.—(*Cuba, Ant.*)

**4. CITRUS** L. Shrubs or trees. Leaf-blades 1-foliate, the petiole often winged. Flowers perfect, axillary. Sepals united. Petals 5, or 4-8, mostly wax-like. Ovary several-celled. Berry several-seeded. The following species, apparently natives of Asia, are widely cultivated, and naturalized.

Berry of a globose or spheroidal type, not mamillate at the apex.

Wings of the petioles usually broad: pulp of the berry bitter and sour.

1. *C. vulgaris*.

Wings of the petioles usually narrow: pulp of the berry sweet or sour.

2. *C. Aurantium*.

Berry of an elongate type, commonly mamillate at the apex.

Berry relatively small, with a relatively thin rind: the pulp well developed, with abundant juice, and very acid.

Corolla 2-2.5 cm. wide: leaflets with a rounded apex.

3. *C. Lima*.

Corolla 3-5 cm. wide: leaflets with an acute apex.

4. *C. Limonum*.

Berry relatively large, with a thick rind, the pulp only slightly developed, with little juice, and not very acid.

5. *C. Medica*.

1. *C. vulgaris* Risso. Small tree with sharp thorns: leaflets ovate to oblong, 6-12 cm. long, often acuminate, the petioles usually broadly winged: flowers in small cymes: sepals often obtusish: berries dark-orange or reddish, the rind thick, the pulp sour and bitter.—Hammocks.—(*Ber., Cuba, Ant.*)—BITTER-SWEET ORANGE.

2. *C. Aurantium* L. Small tree with short sharp thorns: leaflets oval, oblong-ovate, or ovate, 6.5-13 cm. long, often acute or rounded, the petioles usually narrowly winged: flowers in axillary clusters: sepals often acute: berries mostly yellow, the rind usually thin, the pulp sour or sweet.—Hammocks. (*Ber., Cuba, Ant.*)—SWEET-ORANGE.

3. *C. Lima* Lunan. Small tree or straggling shrub, with numerous sharp thorns: leaflets oval to oblong-elliptic, 6.5-9 cm. long, commonly rounded at the apex, crenulate: petioles narrowly winged: flowers in clusters of 3-10: petals white without and within: berries small, mostly less than 6 cm. long, the rind very thin, the pulp greenish.—Hammocks.—(*Cuba, Ant.*)—LIME.

4. *C. Limonum* (L.) Risso. Small tree or spreading shrub, less thorny than *C. Lima*; leaflets oblong-elliptic or ovate-oval, 5-11 cm. long, commonly acute or acuminate at the apex, crenate: petioles broadly winged: flowers solitary or 2 together: petals purplish without, white within: berries large, mostly over 6 cm. long, the rind relatively thin, the pulp yellowish.—Hammocks.—(*Ber., Cuba, Ant.*)—LEMON.

5. *C. Medica* L. Small tree or shrub, sometimes with stout thorns: leaflets oblong to elliptic, or slightly broadened upward, 12-20 cm. long, rounded and often emarginate at the apex, serrulate-crenate, dull-green: flowers in clusters of 3-10: petals purple-tinged without, white within: berries oblong or oval, usually very large, mostly 12-20 cm. long, often coarsely wrinkled, the rind very thick.—Hammocks.—(*Ant.*)—CITRON.

#### FAMILY 6. **SURIANACEAE.** BAY-CEDAR FAMILY.

Shrubs or trees of coastal sands. Leaves alternate: blades entire. Flowers perfect, solitary or few in terminal clusters. Calyx of 5 persistent sepals. Corolla of 5 clawed petals. Androecium of 10 stamens, those opposite the petals more or less reduced. Gynoecium of 5 distinct carpels opposite the petals. Ovules 2, side by side. Fruit achene-like.

1. **SURIANA** [Plum.] L. Shrubs with erect stems, or trees with wide-spreading branches, the bark flaky. Leaves numerous, fleshy. Fruits seated in the persistent calyx.

1. *S. maritima* L. Shrub, or tree 8 dm. tall, the wood very hard and heavy: leaves fleshy, appressed-pubescent, approximate; blades linear-spatulate, 1.5-4 cm. long: sepals ovate, 6-8 mm. long: petals yellow, about as long as the sepals: mature carpels 4-4.5 mm. long.—Coastal sand-dunes and hammocks, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—BAY-CEDAR.

#### FAMILY 7. **SIMAROUBACEAE.** QUASSIA FAMILY.

Shrubs, trees, or rarely herbs. Leaves alternate or rarely opposite: blades pinnately compound, 1-3-foliolate or rarely simple. Flowers polyg-



amous, dioecious, or rarely perfect, solitary, spicate, racemose, or paniculate. Calyx of 3-5 sepals. Corolla 3-5 petals, or wanting. Androeceium of as many stamens as there are sepals or twice as many, or rarely very many. Gynoeceium of 2-5 more or less united carpels. Ovary usually lobed. Stigmas mostly introrse. Fruit a drupe or a samara, or baccate or capsular.

Fruit drupaceous: flowering panicles erect.

Carpels becoming distinct, forming simple drupes: leaf-blades equally pinnate.

1. SIMAROUBA.

Carpels permanently united, forming a berry: leaf-blades unequally pinnate.

2. PICRAMNIA.

Fruit samaroid: flowering racemes drooping.

3. ALVARADOA.

1. **SIMAROUBA** Aubl. Trees. Leaf-blades abruptly pinnate, the leaflets thick. Flowers monoecious or dioecious, paniculate. Sepals 4 or 5, short. Petals 4 or 5, much larger than the sepals, imbricate. Stamens 8 or 10, each with a fringed appendage at the base. Ovary 4-5-celled, scarcely lobed at the apex: style very short. Fruit a cluster of 5, or fewer, drupes, with the style-base lateral.

299 1. **S. glauca** DC. Tree sometimes 16 dm. tall: leaflets 6-12; blades oblong or nearly so, 4-8 cm. long, entire: drupes oval, about 2 cm. long, scarlet or dark-purple.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—PARADISE-TREE. BITTER-WOOD.

2. **PICRAMNIA** Sw. Shrubs or trees. Leaf-blades unequally pinnate, the leaflets thickish. Flowers dioecious, spicate or racemose. Sepals 3-5, short. Petals 3-5, imbricate or wanting. Stamens 3-5, unappendaged. Ovary 2-3-celled, not lobed: style very short. Fruit a berry.

300 1. **P. pentandra** Sw. Shrub or small tree: leaflets 5-7; blades elliptic to oblong-elliptic, or rarely ovate, 5-10 cm. long, lustrous above: berries oblong, 10-15 mm. long.—Hammocks, U. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—BITTERBUSH.

## FAMILY 8. **BURSERACEAE**. TORCHWOOD FAMILY.

Trees with a resinous sap. Leaves alternate: blades pinnate, rarely 1-3-foliolate. Flowers perfect or polygamo-dioecious, racemose or paniculate. Calyx of 3-6 sepals. Corolla of 3-6 petals. Androeceium of 6-12 stamens. Gynoeceium of 2-5 united carpels. Fruit drupaceous, the epicarp sometimes valvate.

1. **ELAPHRIUM** Jacq. Trees. Leaves approximate at the ends of the branches: leaflets thick. Sepals 4-6, imbricate. Petals 4-6, mostly valvate. Stamens 8-12, erect. Ovary 3-5-celled. Drupe with a valvate epicarp. [*Bursera* Jacq.]

1. **E. Simaruba** (L.) Rose. Tree, becoming 20 m. tall: leaflets 3-7; blades oval or elliptic, varying to ovate or obovate, 3-5 cm. long, entire: racemes 5-10 cm. long: petals 2-2.5 mm. long: drupes oblong, 8-11 mm. long, or rarely smaller, the epicarp 3-valved.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—WEST-INDIAN BIRCH. GUMBO-LIMBO. GUM-ELEMI.

## FAMILY 9. **MELIACEAE**. MAHOGANY FAMILY.

Shrubs or trees, or partially woody herbs. Leaves alternate: blades pinnately 1-3-compound. Flowers perfect or polygamo-dioecious, panicu-



late. Calyx of 3-5 sepals. Corolla of 3-5 petals. Androecium of 8-10, or rarely fewer or more, stamens, with the filaments united into a tube. Gynoecium of 3-5 united carpels. Ovary 3-5-celled. Fruit a berry, a capsule, or a drupe.

1. **SWIETENIA** Jacq. Trees, with hard wood. Leaf-blades once equally pinnate. Sepals 5. Petals 5. Staminal-tube short, the lobes entire. Stigma discoid. Capsule woody.

1. **S. Mahagoni** Jacq. Tree becoming 25 m. tall: leaflets 4-8; blades leathery, 3-8 cm. long, entire: petals usually 3-4 mm. long: capsules ovoid, 6-12 cm. long, erect.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—**MAHOGANY. MADEIRA-REDWOOD.**

### Order POLYGALALES.

Herbs, shrubs, or trees. Leaves alternate, opposite, or whorled, sometimes scale-like. Flowers perfect. Perianth mostly irregular, each whorl of 5, or rarely 3 or 4 parts. Androecium of 6, 8, or 10 stamens, the filaments often partially united. Anthers opening by terminal pores or cracks. Gynoecium of 2 united carpels, or rarely of more. Fruit capsular.

#### FAMILY 1. POLYGALACEAE. MILKWORT FAMILY.

Leaf-blades mostly entire. Flowers solitary, spicate, or racemose, irregular. Calyx of mostly 5 sepals, the 2 inner petaloid. Corolla of 5, or often of 3, partially united petals, the lower one keel-like. Androecium of 6-8 stamens, partially coherent with the petals. Anthers 1-celled. Capsule usually 2-seeded.

1. **POLYGALA** [Tourn.] L. Herbs or woody plants. Leaf-blades mostly entire. Spikes or racemes lax or dense. Sepals 5, the 2 lateral ones (wings) larger than the others. Petals 3, or rarely 5, the middle one (keel) commonly lobed or crested at the apex. Stamens 8 or 6: filaments united into a tube or into 2 sets. Style curved. Capsule flattened. Seed usually carunculate.—**MILKWORT.**

Keel without beak or crest.

Wings shorter than the capsule: capsules deeply notched.

1. *P. Krugii*.

Wings much longer than the capsule: capsules shallowly notched.

2. *P. corallicola*.

Keel with a papillose or tufted beak.

Sepals not decurrent on the pedicel.

3. *P. praetervisa*.

Sepals decurrent on the pedicel.

4. *P. Carteri*.

1. **P. Krugii** Chodat. Plants 3-4 dm. tall: blades of the lower leaves spatulate to linear-spatulate, those of the upper leaves narrowly elliptic to linear-elliptic or narrowly linear-lanceolate: flowers purple, often pale: sepals about 1.5 mm. long: wings broadly obovate, 2.5-3 mm. long at maturity: capsules about 3 mm. long.—Coastal sand-dunes, U. S. keys.—[E. K.]—(*Bah.*)

2. **P. corallicola** Small. Plants 2-4.5 dm. tall: blades of the upper leaves linear, typically narrowly so, or filiform-linear: flowers purple: sepals 1-1.5 mm. long at maturity: wings 3.5-4 mm. long at maturity: capsules 3-3.5 mm. long.—Pinelands, L. keys.—[E. K.]—(*Bah., Cuba.*)

3. **P. praetervisa** Chodat. Plants erect, 3-6 dm. tall: blades of the lower leaves obovate, those of the upper ones lanceolate to linear-subulate: flowers

greenish: sepals 1-1.5 mm. long: wings oval to suborbicular-oval, 2-2.5 mm. long: keel 2-2.5 mm. long: capsules oval-elliptic, about 2 mm. long.—Pinelands and palmlands, L. keys.

- 308 4. *P. Carteri* Small. Plants 1-5.5 dm. tall: leaf-blades various, those of the lower leaves spatulate, those of the upper linear-oblong to almost linear: racemes acute, greenish: wings oblong, sometimes broadly so, abruptly pointed: capsules fully 1 mm. wide: seeds oval, about 1 mm. long.—Low pinelands, L. keys.—[E. K.]

### Order EUPHORBIALES.

Herbs, shrubs or trees. Leaves various, sometimes reduced to scales or almost wanting. Flowers mainly monoecious or dioecious, regular. Calyx of several sepals. Corolla of several petals, or often wanting. Androecium of more than one stamen, except when the staminate flowers are scattered over the inside of an involucre. Filaments distinct or united. Anthers opening by longitudinal or transverse valves. Gynoecium 2-several-carpellary or 1-carpellary, superior. Styles or stigmas usually distinct and cleft, or foliaceous. Ovules 1, 2 or 3 in each cavity. Fruit capsular, sometimes achene-like.

### FAMILY 1. EUPHORBIACEAE. SPURGE FAMILY.

Plants often with a milky sap. Leaves opposite, whorled or alternate: blades entire, toothed, or lobed. Flowers solitary or variously clustered, or much reduced and borne in an involucre. Fruit usually depressed or slightly elongate.

Flowers not in an involucre: calyx of several sepals.

Ovules and seeds 2 in each cavity.

Stamens 5: corolla present.

Stamens 2 or 3: corolla wanting.

Monoecious or rarely dioecious: ovary 3-celled: fruit capsular or baccate.

Anthers opening horizontally: fruits capsular.

Flower-bearing branches dilated, leaf-like, leafless or nearly so.

Flower-bearing branches not dilated, leafy.

Anthers opening vertically: fruits baccate.

Dioecious: ovary 1-2 celled: fruit drupaceous.

Ovules and seeds solitary in each cavity.

Flowers either staminate or pistillate or both in more or less elongated spikes or racemes (pistillate basal).

Corolla present in either staminate or pistillate flowers or in both (except in *Croton punctatus*).

Stamens 5-6: filaments distinct.

Stamens 10: filaments monadelphous.

Corolla wanting.

Styles 2-3: ovary 2-3-celled.

Stamens numerous, 8-20, rarely few in some flowers.

Stamens 1-5.

Pistillate flowers and capsules pedicelled.

Calyx manifest.

Calyx obsolete or rudimentary.

Pistillate flowers and capsules sessile.

Styles 6-8: ovary 6-8-celled.

Flowers either staminate or pistillate, or both, in cymes or corymbs.

Leaf-blades peltate.

Leaf-blades not peltate.

Flowers in forking cyme-like panicles.

Stamens 10 or more: petals wanting.

1. SAVIA.

2. XYLOPHYLLA.

3. PHYLLANTHUS.

4. CICCIA.

5. DRYPETES.

6. CROTON.

7. DITAXIS.

8. ACALYPHA.

9. TRAGIA.

10. GYMANTHES.

11. STILLINGIA.

12. HIPPOMANE.

13. RICINUS.

14. CNIDOSCOLUS.

- Stamens 10 or fewer: petals present.  
 Flowers in simple or branched racemes.  
 Flowers in involucre: calyx represented by a scale.  
 Involucre regular or nearly so, nearly or quite equilateral.  
 Glands of the involucre with petal-like appendages, these sometimes much reduced.  
 Glands of the involucre without petal-like appendages, entirely naked, sometimes with crescent-like horns.  
 Stem topped by an umbel: stipules none: involucre in open cymes, each with 4 glands and entire or toothed lobes.  
 Stem not topped by an umbel: stipules gland-like: involucre in cluster-like cymes, each with a single gland or rarely 4 glands and fimbriate lobes.  
 Involucre irregular, very oblique.
15. *JATROPHA*.  
 16. *MANIHOT*.  
 17. *CHAMAESYCE*.  
 18. *TITHYMALUS*.  
 19. *POINSETTIA*.  
 20. *PEDILANTHUS*.

1. **SAVIA** Willd. Shrubs or trees. Leaves alternate: blades thick, entire. Flowers dioecious; the staminate densely clustered, with 5 broad rounded sepals and 5 thin petals broadened upward: stamens 5, exserted. Pistillate flowers solitary or few together, with 5 broad sepals and 5 nearly similar petals: ovary 3-lobed; styles 2-parted. Capsule depressed.

1. *S. bahamensis* Britton. Small tree or shrub, the bark pale gray or whitish: leaf-blades typically obovate, varying to narrowly obovate or oval-obovate, 2-5 cm. long, rounded at the apex, or rarely retuse or acutish, pale-green, shining above, glabrous, short-petioled: staminate flowers with orbicular-ovate sepals about 2 mm. long and cuneate or flabellate thin petals shorter than the sepals: pistillate flowers with suborbicular sepals and petals about 2 mm. long: capsules spheroidal, 5-6 mm. long: seeds 4-5 mm. long.—Hammocks and palm-lands, L. keys.—(*Bah., Cuba.*)

2. **XYLOPHYLLA** L. Shrubs or small trees, with flattened leaf-like, usually distichous, branchlets. Leaves minute or obsolete. Flowers borne in clusters along the margins of the leaf-like branchlets. Staminate flowers mostly with 6 sepals and 3 stamens. Pistillate flowers mostly with 6 sepals and a 3-celled ovary. Fruit capsular.

1. *X. Epiphyllanthus* (L.) Britton. Shrub 1-2 m. tall: flattened branchlets almost linear varying to somewhat spatulate or lanceolate, commonly 4-10 cm. long: larger sepals of the staminate flowers 1-1.5 mm. long: capsules 4-5 mm. broad.—Hammocks, Key West.—(*Bah., Cuba, Ant.*)—Not recently collected.

3. **PHYLLANTHUS** L. Herbs or partially woody plants. Leaf-blades entire. Flowers apetalous. Staminate flowers with 5 or 6 sepals and usually 3 stamens. Pistillate flowers with 5 or 6 sepals and a 3-celled ovary. Fruit capsular.

- Plants annual: mature pistillate calyx 2.5 mm. wide.  
 Leaf-blades cuneate to obovate: capsules about 1.5 mm. wide.  
 Leaf-blades oblong or nearly so: capsules about 2 mm. wide.  
 Plants perennial: mature pistillate calyx 3 mm. wide.  
 Leaf-blades oblong or nearly so: staminate calyx 2 mm. wide; sepals ovate to orbicular-ovate.  
 Leaf-blades cuneate: staminate calyx 1.5 mm. wide; sepals suborbicular.
1. *P. saxicola*.  
 2. *P. Niruri*.  
 3. *P. Garberi*.  
 4. *P. pentaphyllus*.

1. **P. saxicola** Small. Plants 0.5-3.5 dm. tall: leaf-blades cuneate to obovate, abruptly narrowed at the base: staminate calyx 1.5 mm. wide; sepals suborbicular: mature pistillate calyx 2.5 mm. wide; sepals ovate to oblong-ovate: capsules about 1.5 mm. wide.—Low pinelands and hammocks, L. keys.—[E. K.]—(*Bah.*)

2. **P. Niruri** L. Plants 1-3 dm. tall: leaf-blades thin, oblong or nearly so: staminate calyx 1.5 mm. wide; sepals orbicular-ovate: mature pistillate calyx

2.5 mm. wide; sepals oblong: capsules about 2 mm. wide.—Pinelands and waste places, L. keys.—[E. K.]—(*Ber.*, *Bah.*, *Cuba*, *Ant.*)

3. **P. Garberi** Small. Plants 1–3 dm. tall: leaf-blades thickish oblong or nearly so: staminate calyx 2 mm. wide; sepals ovate to orbicular-ovate: mature pistillate calyx 3 mm. wide; sepals oblong to ovate: capsules 2.5–3 mm. wide.—Coastal sand-dunes, U. S. keys, U. keys, L. keys.—[E. K.]

4. **P. pentaphyllus** Wright. Plants 0.5–3.5 dm. tall: leaf-blades thinnish, mainly short-cuneate: staminate calyx 1.5 mm. wide; sepals suborbicular: mature pistillate calyx 3 mm. wide; sepals obovate to elliptic: capsules less than 1.5 mm. wide.—Pinelands, L. keys.—[E. K.]—(*Cuba*.)

4. **CICCA** L. Shrubs or trees. Leaf-blades entire. Flowers similar to those of *Phyllanthus*, but with vertically opening anther-sacs. Fruit baccate.

5. 1. **C. disticha** L. Shrub or small tree, the branchlets spreading or drooping, glabrous: leaves various, those near the base of the branchlets with suborbicular to orbicular-ovate blades 1.5–3 cm. long, those above them with larger ovate to oblong-lanceolate blades: larger sepals suborbicular to orbicular-obovate, 1.5–2 mm. long: berries depressed, 1.5–2 cm. broad.—Roadsides and waste places, Key West. Nat. of the E. Indies.—[E. K.]—(*Bah.*, *Cuba*, *Ant.*)—OTAHEITE-GOOSEBERRY.

5. **DRYPETES** Vahl. Shrubs and trees. Leaf-blades entire or sinuate. Flowers apetalous. Staminate flowers in rather dense clusters, with 4–8 sepals and 4–10 stamens. Pistillate flowers few in a cluster, with 4–8 sepals and a 1–2-celled ovary. Fruit a drupe.—GUIANA-PLUM. WHITEWOOD.

Sepals 4: ovary 2-celled: stigmas 2: drupe less than 1.5 cm. long. 1. *D. lateriflora*.  
Sepals 5: ovary 1-celled: stigma 1: drupe over 1.5 cm. long. 2. *D. diversifolia*.

1. **D. lateriflora** (Sw.) Krug & Urban. Shrub, or tree becoming 10 m. tall: leaf-blades oblong or elliptic: sepals 4: stamens 4: drupes 9–11 mm. in diameter.—HAMMOCKS, U. keys, L. keys.—[E. K.]—(*Bah.*, *Cuba*, *Ant.*)

2. **D. diversifolia** Krug & Urban. Shrub, or tree 12 m. tall: leaf-blades oblong, elliptic or oval: sepals 5: stamens 8: drupes 2–2.5 cm. long.—HAMMOCKS, U. keys, L. keys.—(*Bah.*)

6. **CROTON** L. Herbs or shrubs. Leaf-blades entire, toothed, or lobed. Flowers monoecious or rarely dioecious, usually spicate or racemose. Staminate flowers with 4–6, usually 5, sepals, small often rudimentary petals alternating with glands, and 6 stamens. Pistillate flowers with 5–10 sepals, usually no petals, and a 3-celled ovary. Fruit a capsule.

Petals present in the staminate flowers, wanting or rudimentary in the pistillate.

Leaf-blades entire: pistillate calyx not accrescent.

Leaf-blades narrowly linear.

Leaf-blades ovate to oblong.

Leaf-blades toothed: pistillate calyx accrescent.

Seeds oblong, dull.

Seeds oval or ovate, shining.

Petals wanting in both the staminate and the pistillate flowers.

1. *C. linearis*.

2. *C. Berlandieri*.

3. *C. arenicola*.

4. *C. glandulosus*.

5. *C. punctatus*.

1. **C. linearis** Jacq. Shrub 6–20 dm. tall: leaf-blades narrowly linear, 4–8 cm. long: staminate racemes 4–8 cm. long or longer; sepals triangular; petals spatulate, surpassing the sepals, obtuse: stamens about 15: pistillate racemes 4–5 cm. long: capsules subglobose, 5 mm. high, yellowish floccose: seeds broadly oblong, about 3 mm. long.—Pinelands and coastal sand-dunes, L. keys.—[E. K.]—(*Bah.*, *Cuba*, *Ant.*)



2. *C. Berlandieri* Torr. Shrub 3-8 dm. tall: leaf-blades ovate to oblong, 2.5-3.5 cm. long, usually abruptly acute, the edges slightly repand and glandular, rounded or subcordate at the base, tomentose above when young, pubescent and paler below: staminate flowers on slender pedicels with 15-20 stamens (30-35 in western forms): pistillate flowers 2-6 at base of raceme, usually short-pedicelled; sepals oblong-spatulate with sessile or short-stipitate marginal glands; styles 3, palmately 4-parted or twice 2-parted: capsules globose, 4-5 mm. high.—Sandy soil or waste places, Key West. Perhaps introduced from Texas or Mex.

3. *C. arenicola* Small. Plant 1.5-4.5 dm. tall: leaf-blades ovate to oblong-ovate, 1-3 cm. long, blunt, coarsely toothed: staminate sepals oblong or oval, acute; petals oblong to oblanceolate: stamens 9-12: pistillate flowers solitary or 2-3 below the staminate; sepals spatulate, accrescent: capsules globose-oval, 4.5-5 mm. long: seeds 3-3.5 mm. long.—Pinelands and sand-dunes.—F. K.—U. S. keys.—[E. K.]

4. *C. glandulosus* L. Plant 1 m. tall or less: leaf-blades oblong, varying to oblong-ovate or oblong-lanceolate, or lanceolate, mostly 2-6 cm. long, obtuse, or with an acute apical tooth, serrate or crenate-serrate: staminate sepals ovate to deltoid, acute; petals linear-oblong: stamens 6-11: pistillate flowers clustered: sepals linear or nearly so, accrescent: capsules subglobose or oblong-globose, 4-5 mm. in diameter: seeds oval or ovate, 3.5-4 mm. long, mottled, shining.—Hammocks and cultivated grounds, L. keys.—[E. K.]—(*Cuba, Ant.*)

5. *C. punctatus* Jacq. Plants 5-12 dm. tall: leaf-blades elliptic, oblong, or ovate, 1-5 cm. long, entire or merely undulate: pistillate sepals triangular, nearly equal; stamens normally 12, barely exerted; filaments pubescent: pistillate flowers solitary or 2 or 3 together; sepals oblong or cuneate, not accrescent: capsules subglobose, 5-8 mm. long: seeds about 6 mm. long.—Coastal sand-dunes, U. S. keys.—[E. K.]—(*Ber., Cuba, Ant.*)

7. *DITAXIS* Vahl. Shrubs or perennial herbs. Leaves alternate: blades entire or rarely toothed. Flowers inconspicuously bracted. Staminate flowers with 4 or 5 sepals, 4 or 5 petals, and 4 or 5 stamens or more. Pistillate flowers with a perianth similar to that of the staminate, but with smaller or rudimentary petals, and a 3-celled ovary.

1. *D. Blodgettii* (Torr.) Pax. Plants 1-6 dm. tall: leaf-blades oval, elliptic, or oblong, or those of the lower leaves spatulate, 1.5-4 cm. long: staminate calyx 7-8 mm. wide; sepals lanceolate; petals broadly oblong, shorter than the sepals: mature pistillate sepals lanceolate to linear-lanceolate, 5-6 mm. long: capsules 4-5 mm. wide.—Pinelands and open hammocks, U. keys, L. keys.—[E. K.]

8. *ACALYPHA* L. Herbs or shrubs. Leaf-blades entire or toothed. Flowers conspicuously bracted. Staminate flowers with 4 sepals and 8-16 stamens. Pistillate flowers with 3-5 sepals and a 3-celled ovary.

1. *A. chamaedrifolia* (Lam.) Muell Arg. Stems or branches mostly prostrate, 5-30 cm. long: blades of the upper leaves ovate to oblong-lanceolate, 7-20 mm. long, crenate-serrate: larger bracts 4-6 mm. long, toothed: capsules nearly 2 mm. in diameter.—Pinelands and sandy places, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—THREE-SEEDED MERCURY.

9. *TRAGIA* [Plum.] L. Herbs or shrubs. Leaf-blades entire, toothed or lobed. Flowers on a slender rachis, racemose. Staminate flowers with 3-5 sepals and 1-3, or rarely more, stamens. Pistillate flowers with 3-8 entire or pinnatifid sepals and a 3-celled ovary.



31 1. **T. saxicola** Small. Plants 0.5–2 dm. tall: leaf-blades suborbicular to broadly ovate, 1–2.5 cm. long, crenate-dentate, finely and sharply many-toothed: staminate calyx 3–3.5 mm. wide; sepals linear to narrowly linear-lanceolate: capsules 7–8 mm. wide, hirsute.—Pinelands, L. keys.—[E. K.]

17 10. **GYMNANTHES** Sw. Shrubs or trees. Leaf-blades entire or toothed. Flowers on a stout rachis, spicate. Staminate flowers with a rudimentary or obsolete calyx and 2 or 3 stamens. Pistillate flowers with a rudimentary calyx and a 3-celled ovary.

5 1. **G. lucida** Sw. Shrub, or tree becoming 10 m. tall: leaf-blades cuneate to oblong-spatulate, or nearly oblong, 4–10 cm. long, undulate or obscurely toothed near the apex: spikes shorter than the leaves: capsules depressed, about 1 cm. wide.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—CRAB-WOOD.

11. **STILLINGIA** Garden. Herbs or shrubs. Leaf-blades entire or toothed. Flowers on a simple succulent rachis. Staminate flowers with 2 or 3 sepals and 2 or 3 stamens. Pistillate flowers with 3 sepals and a 2–3-celled ovary. Fruit a capsule.—QUEEN'S-DELIGHT. QUEEN-ROOT.

Stem-leaves with linear blades.

1. *S. angustifolia*.

Stem-leaves with spatulate or oblong-spatulate blades.

2. *S. spathulata*.

31 1. **S. angustifolia** (Torr.) S. Wats. Stems 2.5–6 dm. tall: leaf-blades linear or essentially so, 2–5 cm. long, crenulate-serrulate: spikes 2–4.5 cm. long: capsules 5–6 mm. wide.—Sand-dunes, U. S. keys.—[E. K.]

5 2. **S. spathulata** (Muell. Arg.) Small. Stems 3–7 dm. tall: leaf-blades spatulate to oblong-spatulate, or linear-spatulate on the branches, 7–15 cm. long, crenulate: capsules 7–9 mm. wide.—Sand-dunes, U. S. keys.—[E. K.]

123 12. **HIPPOMANE** L. Trees. Leaf-blades entire or toothed, pinnately veined. Flowers on a simple rachis. Staminate flowers with 2 or 3 sepals and 2 or 3 stamens. Pistillate flowers with 3 sepals and a 6–8-celled ovary. Fruit a drupe.

31 1. **H. Mancinella** L. Tree becoming 18 m. tall: leaf-blades ovate, oblong, or oval, 4–10 cm. long: spikes 4–8 cm. long: drupe spheroidal, 2.5–3.5 cm. broad.—Hammocks, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—MANCHINEEL.

7 13. **RICINUS** [Tourn.] L. Herbs, shrubs, or trees. Leaf-blades peltate, palmately lobed. Flowers on a branched rachis. Staminate flowers with 3–5 sepals and numerous stamens. Pistillate flowers with caducous sepals and a 3-celled ovary. Fruit a capsule.

32 1. **R. communis** L. Shrub 1–5 m. tall or small tree: leaf-blades nearly orbicular, 6–11 lobed, the lobes toothed: capsules 12–16 mm. in diameter.—Pinelands, hammocks, waste places and cultivated grounds, U. keys, L. keys. Nat. of the Tropics.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—CASTOR-OIL PLANT. CASTOR-BEAN. PALMA-CHRISTI.

14. **CNIDOSCOLUS** Pohl. Herbs or shrubs, often bristly-stinging. Leaf-blades entire, lobed, or divided. Flowers in forked cymes. Staminate flowers with a corolla-like 5-lobed calyx and 10–30 stamens. Pistillate flowers with a usually 3-celled ovary.

3 1. **C. stimulosus** (Michx.) A. Gray. Plants 1–12 dm. tall: leaf-blades 8–30 cm. broad: staminate calyx with a cylindric tube, and lobes about equal in

length: capsule 10-16 cm. long, bristly.—Pinelands and sand-dunes, U. S. keys, U. keys, L. keys.—[E. K.]—SPURGE-NETTLE. TREAD-SOFTLY.

15. **JATROPHA** L. Herbs or partially woody plants. Leaf-blades angled or lobed. Flowers monoecious, petaliferous. Staminate flowers with 5 sepals, 5 small petals and 10 stamens. Pistillate flowers with a mainly 2-3-celled ovary. Fruit a capsule.

1. **J. gossypifolia** L. Perennial, 5-11 dm. tall: leaf-blades palmately 3-5-lobed, 8-15 cm. wide, the lobes broad, shallowly toothed and glandular-ciliate: cymes paniculate: petals scarcely twice as long as the sepals: capsules globular-oblong, about 1 cm. long, slightly warty: seeds 7-8 mm. long.—Roadsides and edges of hammocks, Key West. Nat. of the tropics.—(*Bah., Cuba, Ant.*)

16. **MANIHOT** Adans. Herbs or shrubs. Leaf-blades entire or palmately lobed, or parted. Flowers in racemes. Staminate flowers with 5 sepals and 10 stamens. Pistillate flowers often smaller than the staminate, with a 3-celled ovary.

1. **M. Manihot** (L.) Karst. Plants 9-16 dm. tall or more: leaf-blades 3-7-parted: capsules with crenate-undulate wings.—Pinelands and cultivated grounds, U. keys. Nat. of S. Am.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—CASSAVA.

17. **CHAMAESYCE** S. F. Gray. Annual or perennial herbs or shrubs. Leaves opposite: blades oblique at the base. Involucres axillary or in axillary cymes, each with 4 naked or appendaged glands, one sinus being glandless. Capsules smooth, sometimes pubescent. Seeds smooth or transverse-wrinkled.—SPURGE.

Leaf-blades entire.

Plants with prostrate stems and branches.

Plants annual or biennial.

Seeds about 2 mm. long: capsule over 2 mm. long.

Seeds less than 1.5 mm. long: capsule less than 2 mm. long.

Capsules glabrous: stem and branches glabrous, sometimes glaucescent.

Larger leaf-blades mostly oblong to ovate-oblong: involucre about 1.5 mm. long.

Larger leaf-blades mostly suborbicular: involucre about 1 mm. long.

Capsules pubescent: stem and branches canescent or puberulent-canescant.

Leaf-blades of an oval or ovate type: branches not filiform, canescent.

Leaf-blades of a deltoid or triangular type: branches filiform, puberulent-canescant.

Plants with erect or ascending stems and branches.

Involucre 1.5-2 mm. long: capsules glabrous.

Twigs and leaves succulent: beach-plant.

Twigs and leaves not succulent: pineland-plant.

Involucre about 1 mm. long: capsules pubescent.

Leaf-blades toothed.

Capsule glabrous.

Stem and branches prostrate.

Stem and branches erect or ascending.

Seeds red or brown: capsules with rounded lobes.

Seeds gray: capsules with sharp lobes.

Capsule pubescent.

Stem and branches erect or ascending.

Stem and branches prostrate.

Involucres axillary, sometimes approximate on lateral branches: pineland-plants.

Involucres in peduncled clusters: hammock plants. Plants erect or ascending: involucre glands long-stalked.

Plants prostrate: involucre glands short-stalked.

1. *C. Ingallsii*.

2. *C. Chiogenes*.

3. *C. serpens*.

4. *C. Garberi*.

5. *C. Scrypyllum*.

6. *C. buxifolia*.

7. *C. scoparia*.

8. *C. adicioides*.

9. *C. Blodgettii*.

10. *C. hypericifolia*.

11. *C. brasiliensis*.

12. *C. Tracyi*.

13. *C. adnoptera*.

14. *C. hirta*.

15. *C. gemella*.

- 32 1. *C. Ingallsii* Small. Leaf-blades oblong to ovate-oblong, fleshy: involucre between 1 mm. and 1.5 mm. long: capsules depressed: seeds broadly ovoid or globose-ovoid, less than 2 mm. long.—Coastal sand-dunes, U. S. keys.
2. *C. Chiogenes* Small. Leaf-blades oval, ovate or oblong, some of them sub-orbicular: involucre about 1.5 mm. long; appendages mostly smaller than the glands: capsules about 1.5 mm. wide: seeds about 1 mm. long, angled, the faces uneven.—Pinelands, L. keys.
3. *C. serpens* (H.B.K.) Small. Branches glabrous: leaf-blades orbicular, orbicular-ovate or oval: involucre barely 1 mm. long; appendages mostly smaller than the glands: capsules between 1 and 2 mm. broad: seeds barely 1 mm. long, prominently angled.—Damp sandy places, Key West.—(*Ant.*)
- 37 4. *C. Garberi* Small. Branches canescent, stout, few: leaf-blades ovate or oval; involucre about 1.5 mm. long; appendages minute or obsolete: capsules fully 1.5 mm. broad, pubescent: seeds about 1 mm. long, reddish-brown.—Pinelands, L. keys, L. S. keys.—[E. K.]
- 38 5. *C. Serpyllum* Small. Branches puberulent-canescant, filiform, very numerous: leaf-blades deltoid or ovate-deltoid to triangular or triangular-ovate, 3–5 mm. long, obtuse: involucre about 1 mm. long; appendages very minute: capsules about 1.5 mm. broad, pubescent: seeds less than 1 mm. long, yellowish or grayish.—Pinelands, Big Pine Key.
- 39 6. *C. buxifolia* (Lam.) Small. Branches glabrous: leaf-blades ovate to broadly oblong, or those of the lower leaves cuneate: involucre 1.5–2 mm. long, glabrous: gland-appendages whitish, mere margins or sometimes larger than the glands: capsules 2.5–3 mm. broad, glabrous: seeds 1–1.5 mm. long, obscurely angled.—Coastal sand-dunes and hammocks, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)
- 33 7. *C. scoparia* Small. Branches glabrous, pale: leaf-blades oblong-ovate, narrowly ovate or ovate, 2–8 mm. long, obtuse or acutish, pale or glaucescent beneath: involucre about 1.5 mm. long, glabrous: gland-appendages white or pink, 2 of them prominent and 2 usually obsolete: capsules 1.5–2 mm. broad, glabrous: seeds about 1 mm. long, grayish, scabrous.—Pinelands, Big Pine Key.
- 35 8. *C. adicioides* Small. Branches finely pubescent: leaf-blades ovate to oval: involucre about 1 mm. long, pubescent; appendages obsolete, or mere uneven margins along the glands: capsules about 1 mm. broad, pubescent: seeds not seen.—Hammocks and sand-dunes, L. keys.
- 36 9. *C. Blodgettii* (Engelm.) Small. Branches glabrous or nearly so: leaf-blades oval, oblong, or spatulate: involucre about 1 mm. long, glabrous: gland-appendages white or pinkish, commonly slightly larger than the glands: capsules fully 1.5 mm. broad, glabrous: seeds about 1 mm. long.—Coastal sand-dunes and low hammocks, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)
- 37 10. *C. hypericifolia* (L.) Small. Branches glabrous or nearly so, the ultimate ones slender: leaf-blades mainly oblong, oblong-lanceolate, or ovate, unequally serrate, usually nearly straight: involucre 1 mm. long or more: gland-appendages obovate to reniform, rather conspicuous: capsules fully 2 mm. wide, glabrous: seeds red or brown, about 1 mm. long.—Pinelands and hammocks, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)
- 38 11. *C. brasiliensis* (Lam.) Small. Branches glabrous, the ultimate ones filiform: leaf-blades resembling those of *C. hypericifolia*: involucre 1 mm. long or less: gland-appendages mostly obovate, rather inconspicuous: capsules usually less than 2 mm. wide: seeds gray, about 1 mm. long.—Hammocks, pine-lands and cultivated grounds, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

12. **C. Tracyi** Small. Branches thinly canescent: leaf-blades oblong to slightly broadest above the middle: involucre fully 1 mm. long, sparingly pubescent: gland-appendages minute, unequal and uneven: capsules nearly 2 mm. broad, slightly pubescent all over: seeds less than 1 mm. long.—Coastal sand-dunes and hammocks, U. keys.—[E. K.]

13. **C. adenoptera** (Bertol.) Small. Branches closely villous: leaf-blades oblong or ovate-oblong: involucre 1–1.5 mm. long, finely pubescent: gland-appendages white or pink, petaloid, 2 of them much larger than the glands: capsules about 1.5 mm. broad, densely pubescent: seeds about 1 mm. long.—Pinelands and sandy places, L. keys, L. S. keys.—[E. K.]

14. **C. hirta** (L.) Millsp. Branches closely pubescent: leaf-blades oblong to oblong-lanceolate, or somewhat triangular, often prominently blotched: involucre mostly in axillary clusters, 1 mm. long or less, minutely pubescent: gland-appendages obsolete or nearly so: capsules fully 1 mm. broad, finely pubescent: seeds about 1 mm. long.—Hammocks, U. keys, L. keys.—[E. K.]—(Ber., Bah., Cuba, Ant.)

15. **C. gemella** (Lag.) Small. Similar to *C. hirta* but smaller, and with more closely prostrate branches: leaf-blades oblong to oblong-lanceolate, mostly evenly green: involucre mostly in terminal clusters, about 1 mm. long, finely pubescent: gland-appendages white, narrower than the glands: capsules fully 1 mm. broad, often closely pubescent: seeds less than 1 mm. long.—Hammocks and sandy places, U. keys, L. keys.—[E. K.]—(Ber., Bah., Cuba, Ant.)

18. **TITHYMALUS** Adans. Annual or perennial herbs or partially woody plants, topped by an umbel. Leaf-blades entire or finely toothed. Involucre in open or compact cymes, each with 4 naked or merely horned glands. Capsule smooth or tuberculate. Seeds pitted.—SPURGE.

1. **T. trichotomus** (H. B. K.) Kl. & Garcke. Stems 1–4 dm. tall: leaf-blades cuneate to oblong, 0.5–1.2 cm. long: bracts similar to the leaves: involucre 2 mm. long: glands obreniform: capsules about 4 mm. broad, minutely wrinkled: seeds subglobose, fully 1.5 mm. in diameter.—Coastal sand-dunes and sandy shores, U. keys, L. keys, L. S. keys.—[E. K.]—(Bah., Cuba, Ant.)

19. **POINSETTIA** Graham. Annual, biennial, or perennial herbs or woody plants. Leaf-blades entire, toothed, or lobed, those of the upper ones often like the bracts highly colored or discolored. Involucre solitary or cymose, each with 1, or rarely 3 or 4, unappendaged glands. Capsule smooth. Seeds tuberculate.—SPURGE.

Leaves, at least those of the main stem, and the bracts, with broad, toothed, pandurate or pinnately lobed blades, those of the branches often narrow: plants pubescent: involucre glands mostly solitary.

Broad leaves with toothed blades.

Broad leaves with pandurate or pinnately lobed blades.

Leaves throughout the plant with very narrowly linear entire blades: plants glabrous: involucre glands mostly 3 or 4.

1. *P. heterophylla*.

2. *P. cyathophora*.

3. *P. pinctorum*.

1. **P. heterophylla** (L.) Small. Perennial, stems 3–12 dm. tall: leaf-blades obovate, oblong, or ovate, or narrower, especially on the branches, 5–15 cm. long: involucre campanulate, mostly over 3 mm. long: capsules 3.5–4 mm. long: seeds 3–3.5 mm. long, prominently tuberculate.—Hammocks, U. keys, L. keys, L. S. keys.—[E. K.]—(Ber., Bah., Cuba, Ant.)

2. **P. cyathophora** (Murr.) Small. Annual, stems 1.5 m. tall or less, pubescent: leaf-blades oblong or oval, varying to obovate or ovate, or narrower especially on the branches, 5–18 cm. long: involucre campanulate, 3.5–4 mm. long: capsules 4–4.5 mm. long: seeds 3–3.5 mm. long, tuberculate.—Hammocks, and cultivated grounds, U. keys, L. keys.—[E. K.]—(Ber., Bah., Cuba, Ant.)—PAINTED-LEAF.



30- 3. *P. pinetorum* Small. Stems 3-10 dm. tall, glabrous: leaf-blades narrowly elongate-linear, 4-15 cm. long: involucre turbinate, mostly less than 3 mm. long: capsules 2.5-3 mm. long: seeds 2-2.5 mm. long, slightly tuberculate. —Pinelands and sandy places, U. keys, L. keys, L. S. keys.—[E. K.]—(*Cuba*.)

7 20. *PEDILANTHUS* Neck. Shrubs with fleshy branches. Leaves succulent. Involucres borne in dichotomous, often contracted cymes, oblique and strongly 2-lipped, the lower lip much larger than the upper. Capsule 3-lobed, the carpels often keeled or horned.

20- 1. *P. tithymaloides* (L.) Poit. Plants 3-16 dm. tall or more, the stem and branches sometimes zigzag: leaves spreading; blades ovate to ovate-lanceolate, 4-11 cm. long: involucre 12-14 mm. long, red or reddish, the 2 terminal lobes broadly ovate, ciliolate: stamens and style exserted: capsules 6-7 mm. long: seeds 3-3.5 mm. long.—Hammocks and cultivated grounds, U. keys. Nat. of the Tropics.—[E. K.]—(*Bah.*, *Cuba*, *Ant.*)—REDBIRD-FLOWER. JEW-BUSH.

### Order SAPINDALES.

Shrubs or trees. Leaves various: blades simple and entire or toothed, or compound. Calyx of distinct sepals. Corolla of distinct petals, regular or rarely irregular, or wanting. Androecium of as many stamens as there are petals, or of twice as many, or rarely of more or fewer. Filaments distinct. Gynoecium of a single carpel, or of several united carpels. Fruit various.

Plants with resin-bearing tissues.

Fam. 1. SPONDIACEAE.

Plants not resin-bearing.

Leaf-blades simple, pinnately veined.

Disk present: corolla present.

Anthers introrse: seeds arilled.

Fam. 2. CELASTRACEAE.

Anthers extrorse: seeds not arilled.

Fam. 3. HIPPOCRATEACEAE.

Disk obsolete: corolla wanting.

Fam. 4. DODONAEACEAE.

Leaf-blades simple and palmately veined or compound.

Fam. 5. SAPINDACEAE.

### FAMILY 1. SPONDIACEAE. SUMAC FAMILY.

Shrubs, trees, or vines, with a milky, resinous, often acid or caustic sap. Leaves alternate: blades simple or pinnately compound. Flowers monoecious, dioecious, or polygamous. Calyx of 3-5 sepals. Corolla of 3-5 petals, larger than the calyx. Androecium of 3-6, or rarely more, stamens. Gynoecium of 1, or of 3-5 more or less united, carpels. Fruit a drupe or a berry.

Leaf-blades simple: ovary on a swollen receptacle.

1. MANGIFERA.

Leaf-blades compound: ovary not on a swollen receptacle.

Drupe somewhat elongate, the coats permanently united.

2. METOPIMUM.

Drupe depressed, the coats ultimately separating.

3. TOXICODENDRON.

7 1. *MANGIFERA* L. Trees. Leaf-blades simple, relatively narrow. Flowers polygamo-dioecious, in stiff panicles, the branches not plumose. Sepals 4 or 5. Petals 4 or 5. Ovary oblique: style 1, lateral. Drupe ovoid to somewhat reniform, smooth: stone tenaciously fibrous-coated.

30- 1. *M. indica* L. Leaf-blades leathery, oblong to linear-oblong or linear-lanceolate, mostly 1-3.5 dm. long, reticulate: panicles 1-4 dm. long: sepals ovate: petals oblong or nearly so, 3.5-4 mm. long: drupes 5-10 cm. long, aromatic.—Hammocks and fields, L. keys.—Nat. of the E. Indies.—[E. K.]—(*Bah.*, *Cuba*, *Ant.*)—MANGO.



2. **METOPIMUM** P. Br. Shrubs or trees. Leaf-blades pinnately compound. Flowers dioecious, in open panicles. Sepals 5. Petals 5. Ovary equilateral: styles united: stigmas 3-lobed. Drupe not oblique.

1. **M. toxiferum** (L.) Krug & Urban. Shrub, or tree becoming 14 m. tall, with a very poisonous sap: leaflets 3-7; blades ovate, leathery, 3-9 cm. long: panicles 1-2 dm. long: sepals reniform or suborbicular: petals oblong to ovate: drupes 10-15 mm. long.—Hammocks and coastal sand-dunes, U. S. keys, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—POISONWOOD. CORAL-SUMAC. HOG-GUM. DOCTOR-GUM.

3. **TOXICODENDRON** [Tourn.] Mill. Shrubs, trees, or vines, with poisonous sap. Leaf-blades pinnately compound. Flowers polygamous or dioecious, in rather dense panicles. Sepals 4-6. Petals 4-6. Ovary glabrous: styles short. Drupe mostly glabrous, the sarcocarp wax-secreting. Seeds ribbed.

1. **T. radicans** (L.) Kuntze. Shrub with pubescent twigs: blades of the leaflets leathery, ovate to oblong-ovate, 3-5 cm. long: drupes 2.5-3 mm. in diameter.—Hammocks, L. keys.—[E. K.]—(*Ber., Bah.*)—POISON-OAK. POISON-IVY.

## FAMILY 2. CELASTRACEAE. STAFF-TREE FAMILY.

Shrubs, trees, or vines. Leaves alternate, opposite, or whorled: blades simple. Flowers perfect, polygamous, or dioecious, variously borne. Calyx of 3-5 sepals. Corolla of 3-5 petals. Androeceium of 3-5 stamens borne on or below the disk. Gynoeceium of 2-5 united carpels. Fruit a capsule, a drupe, or a berry. Seed often arillate.

Fruit capsular, dehiscent.

Fruit drupaceous, indehiscent.

Flowers perfect: ovary 4-celled.

Flowers dioecious: ovary 2-celled.

Leaves opposite: ovules pendulous.

Leaves alternate: ovules erect.

1. MAYTENUS.

2. RHACOMA.

3. GYMINDA.

4. SCHAEFFERIA.

1. **MAYTENUS** Molina. Shrubs or trees. Leaves alternate, persistent: blades leathery or succulent, entire or toothed. Flowers polygamous or dioecious, solitary or clustered. Sepals 5. Petals 5. Stamens 5, borne below the disk. Capsules erect.

1. **M. phyllanthoides** Benth. Shrub or small tree: leaf-blades succulent, obovate to oblong-oblancoelate, 2-4 cm. long: hypanthium broadly turbinate: corolla 2-3 mm. broad: capsules obovoid, 8-12 mm. in diameter, red.—Coastal sand-dunes and hammocks, U. keys, L. keys, L. S. keys.—[E. K.]—(*Cuba.*)

2. **RHACOMA** L. Shrubs or small trees. Leaves alternate, opposite, or whorled, persistent: blades entire or toothed. Flowers perfect, solitary or clustered in the axils. Sepals 4 or 5. Petals 4 or 5. Stamens 4 or 5, borne between the lobes of the disk. Drupe smooth. [*Crossopetalum* P. Br.]

Leaf-blades spiny-toothed: cymes short-stalked (3-5 mm.)

Leaf-blades crenate or entire: cymes long-stalked (10-15 mm.).

1. *R. ilicifolia*.

2. *R. Crossopetalum*.

1. **R. ilicifolia** (Poir.) Trelease. Depressed shrub with pubescent twigs: drupes 3-4 mm. long.—Pinelands, L. keys.—[E. K.]

2. **R. Crossopetalum** L. Erect shrub or small tree with glabrous twigs: drupes 5-6 mm. long. [*Crossopetalum austrinum* Gardner.]—Coastal sand-dunes and hammocks, U. S. keys, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

3. **GYMINDA** Sarg. Shrubs or trees, the twigs 4-angled. Leaves opposite, persistent: blades mostly entire. Flowers dioecious, in axillary cymes. Sepals 4, or rarely 3. Petals 4, or rarely 3. Stamens 4, borne outside the disk. Stigmas disk-like. Drupe smooth.

1. **G. latifolia** (Sw.) Urban. Shrub or small tree: leaf-blades obovate to elliptic-obovate, 2-4 cm. long, light-green, or (glaucous above in *G. latifolia glaucifolia*): petals oblong to obovate-oblong 1.5-2 mm. long: drupes oblong to ovoid, 7-8 mm. long, bluish-black.—Coastal sand-dunes and hammocks, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—FALSE-BOXWOOD.

4. **SCHAEFFERIA** Jacq. Shrubs or trees, the twigs terete. Leaves alternate, persistent: blades entire. Flowers dioecious, in axillary clusters. Sepals 4. Petals 4. Stamens 4. Stigmas recurved. Drupe tubercled.

1. **S. frutescens** Jacq. Shrub or small tree: leaves not clustered: flowers manifestly pedicelled: drupes about 5 mm. in diameter.—Coastal sand-dunes and hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—BOXWOOD. YELLOW-WOOD.

### FAMILY 3. HIPPOCRATEACEAE. HIPPOCRATEA FAMILY.

Shrubs or trees, or vines. Leaves opposite: blades simple. Flowers perfect, in axillary racemes, panicles, or cymes. Calyx of 5 persistent sepals. Corolla 5 petals. Androeceium of mostly 3 stamens. Gynoeceium of 3 united carpels. Fruit a berry, a drupe or a capsule of 3 or fewer carpels cohering at the base. Seeds flattened.

1. **HIPPOCRATEA** L. Trees or woody vines. Leaf-blades leathery. Sepals and petals 5. Stamens 3: filaments dilated at the base. Capsule lobed. Seeds winged.

1. **H. volubilis** L. Climber: leaf-blades oblong or elliptic, varying to ovate or obovate, 5-14 cm. long, crenate-serrate: corolla 5-6 mm. broad: mature carpels broadly obovate, 2.5-3 cm. long. [*H. ovata* Lam.]—Hammocks, U. keys.—(*Cuba, Ant.*)

### FAMILY 4. DODONAEACEAE. DODONAEA FAMILY.

Shrubs or trees. Leaves alternate: blades simple. Flowers polygamous or polygamo-dioecious, variously borne. Calyx of 3-5 sepals. Corolla wanting. Androeceium of 5-8 stamens. Disk obsolete. Gynoeceium of 3 or 4 united carpels. Fruit a reticulate septicidal capsule. Seeds subglobose or somewhat flattened.

1. **DODONAEA** [Plum.] L. Erect plants with usually viscid foliage. Leaf-blades broadened upward. Capsule winged.

1. **D. jamaicensis** DC. Shrub 1-4 m. tall: leaves 3-11 cm. long; blades narrowly spatulate, gradually narrowed to the base: sepals oblong, 2.5-3 mm. long, ciliolate, persistent: fruits 10-16 mm. long, deeply notched at the apex.—Hammocks, L. keys.—[E. K.]—(*Ber., Cuba, Ant.*)

### FAMILY 5. SAPINDACEAE. SOAPBERRY FAMILY.

Shrubs, trees, or vines. Leaves opposite or alternate: blades simple or pinnate, sometimes 1-foliolate. Flowers dioecious, polygamous, or polygamo-dioecious, or rarely perfect, borne in racemes, panicles, or

corymbs. Calyx of 4 or 5 sepals. Corolla of 4 or 5 petals, or wanting. Disk sometimes gland bearing. Androecium mostly of 5 or more stamens. Gynoecium of 2-4 more or less united carpels. Fruit capsular or baccate.

Vines: fruit septicidal or septifragal: capsule inflated.  
Shrubs or trees: fruit baccate, or if dehiscent, loculicidal.

Fruit baccate, not stalked: flowers regular.

Ovules solitary in each cavity.

Ovules 2 in each cavity.

Ovary 2-celled: ovules collateral: leaflets 2, 4 or 6.

Ovary 3-celled: ovules superposed: leaflets 3.

Fruit a leathery loculicidally 3-valved capsule, stalked.

1. **CARDIOSPERMUM**.

2. **SAPINDUS**.

3. **EXOTHEA**.

4. **HYPELATE**.

5. **CUPANIA**.

1. **CARDIOSPERMUM** L. Herbaceous or woody vines. Leaves alternate: blades biternate or decompound. Flowers polygamo-dioecious, irregular. Sepals 4. Petals 4, unequal. Disk one-sided, with 2 glands opposite the lower petals. Stamens 8. Capsules bladdery.

Capsules longer than wide, large, over 2.5 cm. long.

Capsules wider than long, small, less than 2.5 cm. long.

1. *C. Halicacabum*.

2. *C. microcarpum*.

356 1. **C. Halicacabum** L. Leaflets 3; blades ovate to ovate-lanceolate, coarsely serrate, incised or parted: petals 3.5-4.5 mm. long: capsules obovoid.—Hammocks and waste places, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—BALLOON-VINE.

357 2. **C. microcarpum** H.B.K. Leaflets 3; blades relatively smaller and more sharply cut than those of *C. Halicacabum*, usually nearly glabrous: petals 2-2.5 mm. long: capsules broadly obpyramidal.—Hammocks and waste places, L. keys.—(*Ber., Bah., Cuba, Ant.*)

2. **SAPINDUS** [Tourn.] L. Shrubs or trees. Leaves alternate: blades pinnate. Flowers polygamous, regular. Sepals 4 or 5. Petals 4 or 5, sometimes appendaged. Stamens 8-10. Baccate fruit lobed.

358 1. **S. Saponaria** L. Shrub, or tree becoming 10 m. tall: leaflets 4-7; blades oblong, oval, or obovate, 3-12 cm. long: leaf-rachis winged: mature carpels globose, 14-18 mm. in diameter.—Hammocks, U. keys, L. keys.—[E. K.]—(*Cuba, Ant.*)—SOAPBERRY. FALSE-DOGWOOD.

3 3. **EXOTHEA** Macfadyen. Shrubs or trees. Leaves alternate: blades equally pinnate. Flowers mostly polygamous, irregular. Sepals 5. Petals 5, unappendaged, short-clawed. Stamens mostly 8. Baccate fruit not lobed.

359 1. **E. paniculata** (Juss.) Radlk. Tree or shrub: leaflets 2-4, or rarely 6; blades oblong or elliptic, 5-13 cm. long, entire: buds clove-shaped: sepals 3-4 mm. long: petals white, resembling the sepals: fruits subglobose, 10-13 mm. in diameter, orange turning purple.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—INKWOOD. IRONWOOD.

4. **HYPELATE** P. Br. Shrubs or trees. Leaves alternate: blades 3-foliate. Flowers polygamo-dioecious. Sepals 5. Petals 5, unappendaged, clawless. Stamens 8-10. Baccate fruit not lobed.

360 1. **H. trifoliata** Sw. Tree: leaflets 3; blades spatulate to narrowly obovate, 2.5-4.5 cm. long: petals white, suborbicular, 1-1.5 mm. long: fruits ovoid, 5-7 mm. long, black.—Hammocks, U. keys, L. keys.—(*Bah., Cuba, Ant.*)—WHITE-IRONWOOD.

5. **CUPANIA** [Plum.] L. Shrubs or trees. Leaves alternate: blades pinnate. Flowers polygamo-dioecious, regular. Sepals 4 or 5, rarely 3 or 6. Petals 4 or 5, sometimes appendaged, or wanting. Stamens 8, or 5, 6, 10, or 12. Capsule 2-4-lobed.

- 361 1. **C. glabra** Sw. Tree: leaflets 6-12; blades oblong with a cuneate base, 6-11 cm. long, crenate or crenate-serrate above the middle: sepals ovate, 2-2.5 mm. long: petals cuneate-flabellate, 2-2.5 mm. long: capsules turbinate, 11-14 mm. broad, stipitate.—Hammocks, Big Pine Key. Not recently collected.—(*Cuba, Ant.*)

### Order RHAMNALES.

Shrubs, trees, or vines. Leaves typically alternate. Flowers regular, sometimes imperfect or incomplete. Calyx present. Corolla present or wanting. Androecium of as many stamens as there are sepals. Gynoecium of 2 or more united carpels. Ovary superior or nearly so. Fruit a capsule or a berry, or drupaceous.

Sepals manifest: petals involute: fruit capsular or drupaceous.

Sepals minute or obsolete: petals valvate: fruit baccate. Fam. 1. FRANGULACEAE.  
Fam. 2. VITACEAE.

### FAMILY 1. FRANGULACEAE. BUCKTHORN FAMILY.

Shrubs, trees, or vines. Leaf-blades simple, pinnately veined. Flowers perfect or polygamous, or sometimes dioecious. Calyx of 4 or 5 sepals. Corolla of 4 or 5 petals, or wanting. Androecium of 4 or 5 stamens opposite the petals. Gynoecium of 2 or 3 united carpels. Fruit capsular or drupaceous, sometimes separating into nutlets.

Fruit pulpy, with a 1-3-celled stone.

Sepals crested.

1. KRUGIODENDRON.

Sepals not crested.

2. REYNOSIA.

Fruit dry or berry-like, with 2-4 separating nutlets.

Fruit not winged, seated in the persistent calyx.

3. COLUBRINA.

Fruit winged, crowned with the sepals.

4. GOUANIA.

1. **KRUGIODENDRON** Urban. Shrubs or trees. Leaves nearly opposite: blades entire. Flowers perfect. Sepals 5, crested within. Petals wanting. Stamens 5: filaments longer than the anthers. Drupe apiculate.

- 362 1. **K. ferreum** (Vahl) Urban. Shrub, or tree becoming 9 m. tall, the bark ridged: leaf-blades ovate or oval, 3-6 cm. long: sepals ovate: drupes subglobose or oval, 5-8 mm. long, black. [*Rhamnidium ferreum* (Vahl) Sarg.]—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Ant.*)—BLACK-IRONWOOD.

2. **REYNOSIA** Griseb. Shrubs or trees. Leaves opposite: blades entire. Flowers perfect. Sepals 5, crestless. Petals wanting. Stamens 5: filaments longer than the anthers. Drupe apiculate.

3. **R. septentrionalis** Urban. Tree becoming 9 m. tall, the bark scaly: leaf-blades oblong, varying to ovate or obovate: sepals deltoid or ovate-deltoid: drupes subglobose, oval, or obovoid, 1.5-2 cm. long, purple or nearly black. [*R. latifolia* Sarg. Not Griseb.]—Coastal hammocks and sand-dunes, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah.*)—RED-IRONWOOD. DARLING-PLUM.

4. **COLUBRINA** L. C. Rich. Shrubs or trees. Leaves alternate: blades entire or toothed, sometimes 3-nerved at the base. Flowers perfect. Sepals 5, spreading, keeled within. Petals 5, folded around the stamens, clawless. Stamens 5: anthers notched. Drupe slightly 3-lobed, the carpels separating, at least at the top.

Drupes 4-6 mm. in diameter: pedicel abruptly dilated into the hypanthium: leaf-blades glabrate, not rusty-tomentose. 1. *C. reclinata*.

Drupes 8-10 mm. in diameter: pedicel gradually dilated into the hypanthium: leaf-blades rusty-tomentose beneath.

2. *C. Colubrina*.



1. *C. reclinata* (L'Her.) Brongn. Tree becoming 20 m. tall, with puberulent twigs: leaf-blades ovate-oblong or rarely oval or obovate 3-8 cm. long: sepals about 2 mm. long: petals about 1.5 mm. long: drupe slender-pedicelled, seated on the shallow hypanthium.—Hammocks, U. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—NAKEDWOOD.

2. *C. Colubrina* (Jacq.) Millsp. Shrub or small tree, with rusty-tomentose twigs: leaf-blades ovate, oblong, elliptic, or rarely oblanceolate, 5-15 cm. long: sepals about 2.5 mm. long: petals somewhat longer than those of *C. reclinata*: drupe stout-pedicelled, partly immersed in the deep hypanthium.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—WILD-COFFEE.

4. *GOUANIA* Jacq. Shrubs or vines. Leaves alternate: blades broad. Flowers polygamous, the inflorescence-branches often tendrill-bearing. Sepals 5, spreading. Petals 5, clawed, the blades scoop-like. Stamens 5, each surrounded by a petal. Drupe capsule-like, 3-winged, separating into 3-carpels.

1. *G. lupuloides* (L.) Urban. Climber: leaf-blades oval or elliptic, varying to ovate, 3-9 cm. long: spikes 6-15 cm. long: petals 1 mm. long, short-clawed: drupes depressed, about 10 mm. broad. [*G. domingensis* L.]—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

## FAMILY 2. VITACEAE. GRAPE FAMILY.

Vines, sometimes bushy or tree-like, usually with tendrils. Leaves alternate, or the lower ones opposite: blades simple or compound. Flowers perfect, polygamous, or dioecious, in flat-topped or elongate clusters. Calyx of 4 or 5 sepals, or obsolete. Corolla of 4 or 5, often caducous, petals, or wanting. Androeceum of 4 or 5 stamens opposite the petals. Gynoeceum of usually 2 united carpels. Fruit a berry.

Hypogynous disk present, either annular, cup-shaped or glandular: leaf-blades simple or ternately compound.

Petals cohering into a cap, caducous, never separating.

Petals distinct, spreading.

Hypogynous disk wanting or obsolete: leaf-blades digitately 5-7-foliate.

1. MUSCADINIA.

2. CISSUS.

3. PARTHENOCISSUS.

1. *MUSCADINIA* Small. Vines. Leaf-blades angled or coarsely toothed. Flowers in racemes or panicles. Calyx minute. Petals cohering. Berries rather juicy, ultimately edible.

1. *M. Munsoniana* (Simpson) Small. Leaf-blades thinnish, but rather firm, suborbicular or reniform, 4-8 cm. broad, coarsely toothed, glabrous, except the axils of the vein beneath, persistent, cordate at the base: berries globose, 1-1.5 cm. in diameter, nearly black under a slight bloom or shining, the skin and pulp tender, acid: seeds 3-5 mm. long.—Hammocks, U. keys.—[E. K.]—(*Bah.*)—BULLACE-GRAPE.

2. *CISSUS* L. Fleshy vines. Leaf-blades simple or 3-foliate. Flowers in small cymes. Petals spreading. Berries inedible.

Leaf-blades simple, distantly serrate.

Leaf-blades 3-foliate, the leaflets coarsely toothed.

1. *C. sicyoides*.

2. *C. trifoliata*.

1. *C. sicyoides* L. Plants pubescent: leaf-blades ovate or oblong-ovate, 2-8 cm. long, acute or often acuminate: berries subglobose, about 1 cm. in diameter, black.—Hammocks, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

2. *C. trifoliata* L. Plants glabrous: leaf-blades 3-foliate; leaflets 1-3 cm. long, suborbicular varying to ovate or obovate, often flabellate: berries globose-



ovoid or ovoid, abruptly pointed, 5-7 mm. in diameter, dark-purple [*C. acida* L.]—Coastal hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

370 3. **PARTHENOCISSUS** Planch. Vines, the tendrils often disk bearing. Leaf-blades digitately compound. Flowers in compound cymes. Petals spreading. Berries inedible.

1. **P. quinquefolia** (L.) Planch. Leaflets 5; blades usually thinnish, oval, elliptic, or oblong, the lateral ones inequilateral, coarsely serrate above the middle: berries 8-9 mm. in diameter, deep-blue with a scant bloom, often quite pulpy.—Hammocks, U. S. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba.*)—VIRGINIA-CREEPER. AMERICAN-IVY.

### Order MALVALES.

Herbs, shrubs, or trees. Leaves alternate or opposite: blades simple, often lobed and toothed. Flowers mostly perfect, regular and involerate. Calyx of distinct or partially united sepals. Corolla of distinct petals. Androeceium of numerous monadelphous or grouped stamens, or few in BUETTNERIACEAE. Gynoeceium of several distinct or united carpels. Fruit capsular, follicular, berry-like, or nut-like.

Stamens numerous (in our genera).

Stamens distinct or in several groups: anthers 2-celled. Fam. 1. TILIACEAE.

Stamens monadelphous: anthers 1-celled. Fam. 2. MALVACEAE.

Stamens as many as the sepals. Fam. 3. BUETTNERIACEAE.

### FAMILY 1. TILIACEAE. LINDEN FAMILY.

Shrubs, trees, or rarely herbs. Leaves mostly alternate: blades simple. Flowers usually perfect. Calyx of 4 or 5 sepals. Corolla of 4 or 5 petals which sometimes bear petaloid scales at their bases. Androeceium of usually numerous stamens, sometimes as many or twice as many as the sepals. Gynoeceium of 2-several united carpels. Fruit capsular, nut-like, or berry-like.

Petals inserted with the stamens: capsule often silique-like.

1. CORCHORUS.

Petals inserted below the stamens, at the base of an elevated receptacle: capsule subglobose, bur-like.

2. TRIUMFETTA.

3 3 1. **CORCHORUS** [Tourn.] L. Herbs or small shrubs. Leaf-blades serrate. Sepals 5, or rarely 4, unappendaged at the tip. Petals 5 or rarely 4, naked at the base, larger than the sepals. Anther-sacs contiguous. Ovary elongate. Ovules numerous. Capsule many-seeded.

Petals obovate or rhombic-cuneate: capsule with 4 tooth-like beaks.

1. *C. siliquosus*.

Petals spatulate to linear-spatulate: capsule with a single beak.

2. *C. orinocensis*.

1. **C. siliquosus** L. Stems often widely branched: leaf-blades oval-ovate or oblong-lanceolate, 1-5 cm. long: capsules 5-8 cm. long, the body truncate at the apex.—Hammocks, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

77 2. **C. orinocensis** H.B.K. Stems usually sparingly branched: leaf-blades oblong to lanceolate, 2-5 cm. long: capsules 4-5 cm. long, not truncate at the apex.—Hammocks and waste places, L. keys. Nat. of Trop. Am.—[E. K.]—(*Cuba, Ant.*)

2. **TRIUMFETTA** [Plum.] L. Herbs or shrubs. Leaf-blades mostly toothed and lobed. Sepals 5, often appendaged at the tip. Petals 5, each with a pit at the base, often shorter than the sepals, or rarely wanting. Anthers contiguous. Ovary globular. Ovules few. Capsules few-seeded.

1. **T. semitriloba** Jacq. Plants stellate-tomentose, 1-2 m. tall: leaf-blades ovate, rhombic, or suborbicular, serrate, angulate or 3-lobed, 3-8 cm. long: sepals linear, 5-6 mm. long, or longer: petals cuneate-spatulate or linear-spatulate: capsule-bodies 4-5 mm. in diameter, prickly-armed.—Pinelands and hammocks and cultivated grounds, L. keys. Nat. of S. Am.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—BURWEED.

## FAMILY 2. MALVACEAE. MALLOW FAMILY.

Herbs, shrubs, or trees. Leaves alternate: blades simple, pinnately veined. Flowers perfect. Calyx of 5, more or less united valvate sepals. Corolla of 5, convolute petals. Androecium of numerous monodelphous stamens. Gynoecium of several united carpels. Fruit capsular or sometimes baccate.

Fruit of several radially disposed carpels, which separate from each other at maturity.

Carpels as many as there are stigmas.

Carpels 2-several-seeded.

Carpels leathery or parchment-like, never bladdery.

Carpels membranous, bladder-like.

Carpels 1-seeded.

Involucel of 2-3 bractlets.

Involucel wanting.

Carpels  $\frac{1}{2}$  as many as there are stigmas.

Fruit a loculicidal capsule, or rarely indehiscent.

Styles distinct, spreading: seeds usually reniform.

Capsules as long as broad or much longer, the cavities

2-many-seeded.

Bractlets of the involucel distinct.

Bractlets of the involucel united into a lobed cup.

Capsules much depressed, the cavities 1-seeded.

Styles united: seed not reniform.

Bractlets of the involucels entire, rather inconspicuous.

Sepals wholly united or nearly so: capsule indehiscent.

Sepals merely united at the base: capsule loculicidal.

Bractlets of the involucels lacinate, conspicuous.

1. ABUTILON.

2. GAYOIDES.

3. MALVASTRUM.

4. SIDA.

5. MALACHE.

6. HIBISCUS.

7. PARITUM.

8. KOSTELETZKYA.

9. THESPESIA.

10. CIENFUEGOSIA.

11. GOSSYPIUM.

1. **ABUTILON** [Tourn.] Mill. Herbs, shrubs, or rarely trees. Leaf-blades entire, toothed, or lobed. Involucel wanting. Sepals 5, united below. Petals 5, often yellow. Carpels 5-30, beaked at maturity.

1. **A. permolle** (Willd.) Sweet. Stems 5-16 dm. tall, velvety-tomentose: leaf-blades ovate, 2.5-10 cm. long: petals yellow, 10-15 mm. long: carpels 11-12 mm. long.—Coastal hammocks and cultivated grounds, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—INDIAN-MALLOW.

2. **GAYOIDES** Small. Herbs, sometimes vine-like. Leaf-blades commonly toothed. Involucel wanting. Sepals 5, united below. Petals 5, usually yellow. Carpels numerous, beakless at maturity.

1. **G. crispum** (L.) Small. Stem and branches 3-9 dm. long: leaf-blades ovate, 1-5 cm. long, mostly acute or rather obtuse: calyx-lobes rather abruptly pointed: mature carpels angled at the summit.—Pinelands, waste places and cultivated grounds, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

3. **MALVASTRUM** A. Gray. Herbs or partially woody plants. Leaf-blades entire, lobed, or parted. Involucel of distinct bractlets, or wanting.

Sepals 5, partially united. Petals 5, variously colored. Carpels 5 or more, 1-celled, beaked or beakless.—FALSE-MALLOW.

- 276 1. *M. corchorifolium* (Desr.) Britton. Stems 3–9 dm. tall: leaf-blades ovate to oblong-lanceolate, 2–6 cm. long, coarsely serrate: calyx-lobes triangular-ovate, acuminate: petals orange-yellow: carpels hispidulous. [*M. Rugei* S. Wats.]—Hammocks, waste places, and cultivated grounds, L. keys.—[E. K.] (*Bah., Cuba, Ant.*)

- 278 4. *SIDA* L. Herbs or partially woody plants. Leaf-blades usually toothed. Involucre usually wanting. Sepals 5, partially united. Petals 5, pale, often yellow. Carpels 5—many, 1-celled, commonly singly or doubly beaked.

Flowers or flower-clusters in leafy involucre at the ends of the branches.

Flowers or flower-clusters axillary or sometimes in terminal panicles.

Upper stem-leaves with broad blades.

Stems and branches prostrate.

Stems and branches erect or ascending.

Mature carpels with 1 tooth each: peduncles, at least those arising from the stem, much longer than the pedicels.

Mature carpels with 2 teeth each: peduncles shorter than the pedicels or only slightly longer.

Upper stem-leaves narrowly linear.

1. *S. ciliaris*.

2. *S. procumbens*.

3. *S. rhombifolia*.

4. *S. carpinifolia*.

5. *S. Elliottii*.

- 376 1. *S. ciliaris* L. Plants with diffuse branches 1–3 dm. long: leaf-blades oblong to cuneate, 1–4 cm. long, serrate: calyx-lobes triangular: petals reddish-purple: mature carpels 5–8, 2–2.5 mm. long.—Hammocks and open places, U. keys, L. keys.—(*Bah., Cuba, Ant.*)

- 278 2. *S. procumbens* Sw. Plants with tomentose branches, 1–6 dm. long: leaf-blades suborbicular to ovate, 1–2.5 cm. long, crenate: calyx-lobes deltoid-acuminate: petals yellow, 4–6 mm. long: mature carpels often 5, about 2 mm. long, puberulent. [*S. supina* L'Her.]—Hammocks and waste places, U. keys, L. keys, L. S. keys.—(*Bah., Cuba, Ant.*)

- 279 3. *S. rhombifolia* L. Plants 5–9 dm. tall, the branches puberulent or glabrate: leaf-blades rhombic, elliptic-obovate, or oblanceolate, 1.5–8 cm. long, serrate: calyx-lobes triangular: petals pale-yellow or sometimes red-blotched at the base: mature carpels 10–12, about 5 mm. long.—Hammocks and pinelands, and waste places, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Ant.*)

- 380 4. *S. carpinifolia* L. f. Plants 3–9 dm. tall, the branches puberulent or glabrate: leaf-blades lanceolate, oblong-ovate, or ovate, 2–10 cm. long, irregularly serrate: calyx-lobes triangular: petals yellow to white: mature carpels, 8–10, about 4 mm. long.—Pinelands, hammocks and cultivated grounds, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

- 381 5. *S. Elliottii* T. & G. Plants 3–5 dm. tall, or sometimes depressed: leaf-blades linear or nearly so, 2–7 cm. long, serrate: calyx-lobes triangular: petals deep-yellow: mature carpels 8–12, 4–5 mm. long, rugose-reticulated on the back.—Open sandy places and edges of hammocks, Key West.—[E. K.]

- 279 5. *MALACHE* B. Vogel. Shrubs or partially woody plants. Leaf-blades broad, remotely serrate or repand, 3-ribbed. Involucre of 6–8 bractlets or more. Sepals 5, partially united. Petals 5, pale. Carpels with a median crest at the apex and 2 lateral cusps.

1. *M. scabra* B. Vogel. Plants 1-3 m. tall, puberulent: leaf-blades ovate to oblong-ovate, 6-15 cm. long: bractlets oblong-lanceolate: calyx-lobes ovate: petals greenish-yellow or whitish, 2-2.5 cm. long: mature carpels about 10 mm. long, reticulate on the back. [*Pavonia racemosa* Sw.]—Coastal hammocks, U. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

6. **HIBISCUS** L. Herbs, shrubs, or trees. Leaf-blades entire, lobed, or parted. Involucel of several, rarely 3-5 bractlets. Sepals 5, more or less united. Petals 5, white or colored. Carpels forming a 5-valved capsule.—ROSE-MALLOW.

Corolla cylindric, or only the tips of the petals slightly spreading: seeds woolly.

1. *H. spiralis*.

Corolla with more or less widely spreading petals: seeds glabrous or hirsute.

Leaf-blades merely toothed: shrub or small tree.

2. *H. Rosa-Sinensis*.

Leaf-blades parted: large herb.

3. *H. cannabinus*.

1. *H. spiralis* Cav. Plants 3-18 dm. tall, stellate-hirsute: leaf-blades triangular-ovate or angulately 3-lobed, 1-4 cm. long: bractlets linear or nearly so, 7-9 mm. long: calyx-lobes acuminate: petals crimson, 2-2.5 cm. long: capsules fully 1 cm. long. [*H. tubiflorus* DC.]—Hammocks, U. keys, L. keys.—(*Cuba, Ant.*)

2. *H. Rosa-Sinensis* L. Shrub or small tree, usually sparingly pubescent: leaf-blades ovate to ovate-lanceolate, rounded or abruptly narrowed at the base, coarsely and unequally toothed: bractlets narrowly linear: calyx-lobes lanceolate, more pubescent within than without: petals rose-red, or rarely of other colors: capsules 2-2.5 cm. long.—Pinelands and waste places. Nat. of China, escaped from cult. at Key West.—[E. K.]—(*Cuba, Ant.*)—CHINESE-ROSE. SHOEBLACK-PLANT.

3. *H. cannabinus* L. Plants 3-22 dm. tall, sparingly pubescent: leaf-blades palmately 3-7-parted, the divisions linear to elliptic or oblong, unevenly toothed: bractlets narrowly linear, flat, bristle-margined or spiny: calyx-lobes lanceolate, long-acuminate, rather thin, bristle-margined or spiny: petals white or pink, sometimes darker-colored, and purple at the base: capsules 1.5-2 cm. long.—Hammocks and cultivated grounds, U. keys. Nat. of the Old World Tropics.—[E. K.]—(*Cuba, Ant.*)—AMBAREE. BROWN INDIAN-HEMP.

7. **PARITUM** St. Hil. Shrubs or trees, resembling *Hibiscus* in habit, but with the bractlets of the involucel united into a lobed cup.

1. *P. tiliaceum* (L.) Juss. Shrub or small tree, the young parts velvety-tomentose: leaf-blades suborbicular to ovate, 1-2 dm. long, shallowly toothed, prominently veined beneath: calyx-lobes lanceolate or triangular-lanceolate: petals yellow, 5-6 cm. long: capsule 2.5-3.5 cm. long, abruptly pointed.—Coastal hammocks, U. keys, L. keys. Nat. of the Old World Tropics.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—MAHOE.

8. **KOSTELETZKYA** Presl. Herbs or partially woody plants. Leaf-blades angulate-lobed, hastate, or sagittate. Involucel of 7-10 bractlets, or obsolete. Sepals 5, partially united. Petals 5. Carpels forming a depressed capsule.

1. *K. virginica* (L.) A. Gray. Foliage pubescent with stellate hairs but not velvety, often scabrous: leaf-blades 3-15 cm. long, ovate to ovate-hastate, serrate-dentate, the lateral lobes triangular, acute: panicles leafy: calyx-lobes lanceolate or oblong-lanceolate, acute or acuminate: petals pink or purple, 2-4 cm. long: capsules about 10 mm. broad.—Low hammocks, U. S. keys.—[E. K.]

9. **THESPESIA** Soland. Shrubs or trees, resembling species of *Hibiscus*. Leaf-blades angulate-lobed or entire. Involucl of 3-5 narrow deciduous bractlets. Sepals 5, partially or wholly united. Petals 5, showy. Carpels united into a mostly indehiscent capsule.
- 36 1. **T. populnea** (L.) Soland. Shrub or low tree: leaf-blades ovate, 5-12 cm. long: calyx cup-like: petals 5-7 cm. long, yellow and purple: capsules depressed, 3-4.5 cm. broad.—Coastal hammocks, L. keys. Nat. of the Old World Tropics.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—SEASIDE-MAHOE.
- 130 10. **CEINFUEGOSIA** Cav. Shrubs or woody herbs, resembling species of *Hibiscus*. Leaf-blades entire or lobed. Involucels of 3-many bractlets. Sepals 5, united below. Petals 5. Capsule 3-5-valved.
- 5 1. **C. heterophylla** (Vent.) Gareke. Leaf-blades 1.5-5 cm. long, those of the upper leaves narrow: peduncles clavate: bractlets minute: capsules rarely equalling the calyx.—Hammocks and open places, U. keys.—(*Cuba.*)
- 235 11. **GOSSYPIUM** L. Herbs, shrubs, or trees. Leaf-blades palmately lobed or rarely entire. Involucl of 3 large bracts. Sepals 5, united into a cup-like calyx. Petals 5, usually dark-colored at the base. Capsule 5-valved.—COTTON.
- 590 1. **G. hirsutum** L. Small tree or shrub, with usually hirsute twigs: leaf-blades 4-11 cm. wide, sometimes pubescent, 3-lobed, the lobes ovate to deltoid, as long as the body of the leaf or very short: calyx becoming 1-1.5 cm. wide: corolla creamy-white except the purplish base, becoming pink; petals 3-5 cm. long: capsules ovoid, 2.5-3 cm. long.—Hammocks, U. keys, L. keys, L. S. keys.—(*Bah., Cuba, Ant.*)—WILD-COTTON.

### FAMILY 3. BUETTNERIACEAE. CHOCOLATE FAMILY.

Shrubs or trees, or herbs, often resembling *Malvaceae*. Leaves alternate: blades simple. Flowers mostly perfect. Calyx of 5, or rarely fewer, sepals. Corolla of 5, or rarely fewer, petals, or wanting. Androeceium of as many stamens as there are sepals, or more. Staminodia sometimes present. Gynoecium of 5, more or less united carpels, or fewer. Fruit capsular or follicular.

Petals with flat blades: stigma brush-like.

1. **WALTHERIA**.

Petals with hooded blades: stigmas capitate.

2. **AYENIA**.

- 231 1. **WALTHERIA** L. Herbs, shrubs, or trees. Leaf-blades toothed. Involucl of 3 bractlets. Sepals 5, united below. Petals 5, loosely spreading. Stamens 5: anthers with 2 sacs: staminodia wanting. Ovary 1-celled. Capsule smooth, elongate.
- 34 1. **W. americana** L. Plants 6-12 dm. tall, tomentose: leaf-blades ovate to oblong, 1-5 cm. long: flowers in dense axillary clusters: sepals subulate: petals yellow, slightly longer than the sepals: capsules 2.5-3 mm. long.—Hammocks and pinelands, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)
- 237 2. **AYENIA** L. Herbs, often partially woody. Leaf-blades toothed. Involucl wanting. Sepals 5, slightly united. Petals 5, converging, the claws involute. Stamens 5; anthers with three parallel sacs. Staminodia present. Ovary 5-celled. Capsule muricate, depressed.



Petals 6-6.5 mm. long; blades about 1.5 mm. wide; appendages stout, over 0.5 mm. long.

Petals 4-4.5 mm. long; blades about 1 mm. wide; appendages slender, less than 0.5 mm. long.

1. *A. euphrasiaefolia*.

2. *A. pusilla*.

1. *A. euphrasiaefolia* Griseb. Tap-root stout: stems prostrate: leaf-blades predominately suborbicular to reniform, 0.5-1 cm. long, sharply few-toothed: calyx about 3 mm. long: petals reddish: capsules 4-5 mm. in diameter: seeds bluntly tuberculate.—Pinelands, L. keys.—[E. K.]—(*Cuba*.)

2. *A. pusilla* L. Tap-root slender: stems erect or ascending: leaf-blades predominantly oblong to oblong-ovate, 1-2.5 cm. long, rather bluntly many-toothed: calyx about 2 mm. long; lobes ciliate: seeds sharply tuberculate.—Waste places, Key West. Perhaps introduced from the W. Indies. Not recently collected.—[E. K.]—(*Bah., Cuba, Ant.*)

### Order HYPERICALES.

Herbs, shrubs, or trees. Leaves various. Flowers perfect, complete and regular, or irregular in VIOLACEAE, sometimes involucrate. Calyx of distinct, or essentially distinct sepals. Corolla of distinct petals, rarely wanting. Androecium of usually numerous stamens, but sometimes few or 5. Gynoecium of several united carpels. Ovary superior, mostly with parietal placentae. Fruit capsular, baccate, or drupaceous.

Stamens united into a tube which surrounds or encloses the gynoecium.

Placentae parietal.

Fam. 1. CANELLACEAE.

Placentae axile.

Fam. 2. CLUSIACEAE.

Stamens distinct.

Styles distinct or partially united or coherent until maturity, if united to the stigmas, then grooved.

Fam. 3. HYPERICACEAE.

Stigmas not brush-like: endosperm little or none.

Fam. 4. TURNERACEAE.

Stigmas brush-like or 2-cleft in *Piriqueta*: endosperm copious.

Fam. 5. CISTACEAE.

Styles wholly and permanently united.

### FAMILY 1. CANELLACEAE. WILD-CINNAMON FAMILY.

Trees. Leaves alternate: blades entire, pellucid-punctate. Flowers perfect. Calyx of 3 thick imbricate sepals. Corolla of 4-12 narrow petals, or wanting. Androecium of numerous stamens, the filaments united into a tube around the pistil. Gynoecium of 2-5 united carpels. Fruit a berry.

1. *CANELLA* P. Br. Trees with gray bark. Leaf-blades leathery. Flowers in cymes. Petals 5. Stamens mostly 15-20, the tube projecting beyond the anthers. Ovary 1-celled. Berry subglobose.

1. *C. Winteriana* (L.) Gaertn. Tree 5-15 m. tall: leaf-blades oblanceolate, spatulate, or oblong-spatulate, 3-10 cm. long: sepals 2.5-3 mm. broad: petals 5, oblong, 4.5-5 mm. long, purple: berry about 10 mm. in diameter, crimson.—Hammocks, U. keys, L. keys.—(*Bah., Cuba, Ant.*)

### FAMILY 2. CLUSIACEAE. BALSAM-TREE FAMILY.

Shrubs or trees. Leaves opposite: blades entire. Flowers mostly dioecious or polygamous. Calyx of 2-6 imbricate sepals. Corolla of 4-9 petals. Androecium of numerous stamens, the filaments wholly or partially united. Gynoecium of 2 or more united carpels. Fruit baccate, drupaceous, or capsular.

2-3 1. **CLUSIA** L.<sup>1</sup> Shrubs or trees, often epiphytic, at least when young. Leaf-blades leathery. Flowers solitary or few together. Petals 4-9. Ovary 8-10-celled. Capsule leathery or fleshy.—BALSAM-APPLE. FAT-PORK. MONKEY-APPLE.

Fruits slightly elongate or globular: stigmas 12-14.

1. *C. flava*.

Fruits depressed: stigmas 6-8.

2. *C. rosea*.

2 1. **C. flava** Jacq. Tree, sometimes 20 m. tall: leaf-blades cuneate-obovate, 1-1.5 dm. long, many-ribbed: sepals suborbicular: petals yellow, obovate, 2.5-3 mm. long: capsule slightly elongate or globular. Seeds in pulp.—HAMMOCKS, L. KEYS.—(*Ant.*)

3 2. **C. rosea** L. Tree, similar to *C. flava* in habit, but leaves rather larger: capsule depressed.—HAMMOCKS, L. KEYS.—(*Bah., Cuba, Ant.*)

### FAMILY 3. **HYPERICACEAE**. ST. JOHN'S-WORT FAMILY.

Herbs or shrubs. Leaves opposite: blades mostly punctate, entire or nearly so, sometimes scale-like. Flowers perfect. Calyx of 4 or 5 herbaceous equal or unequal sepals. Corolla of 4 or 5, yellow or pink, petals. Androeceum of few or many stamens, sometimes grouped, the groups sometimes alternating with glands. Gynoeceum of 3-7 united carpels. Fruit a capsule.

1. **HYPERICUM** [Tourn.] L. Herbs or shrubs. Sepals 5, essentially equal. Stamens mostly in groups. Style relatively long. Capsule not included.—ST. JOHN'S-WORT.

2 1. **H. aspalathoides** Willd. Plants 2-8 dm. tall: leaves very numerous, with clusters of small ones borne in the axils of the large ones; blades linear-subulate or linear-filiform, 5-8 mm. long, or shorter in the clusters: petals 6-7 mm. long. Pinelands and sandy places, L. KEYS.—[E. K.]—(*Cuba.*)

### FAMILY 4. **TURNERACEAE**. TURNERA FAMILY.

Herbs or shrubs. Leaves alternate: blades entire, toothed, or pinnatifid, pinnately veined. Flowers mostly perfect. Calyx of 5 imbricate sepals. Corolla of 5 convolute delicate petals. Androeceum of 5 distinct stamens. Gynoeceum of 3 united carpels. Ovary 1-celled, with 3 parietal placentae opposite the styles. Fruit a 3-valved capsule.

Stigmas 2-cleft: plants herbaceous.

1. **PIRIQUETA**.

Stigmas brush-like: plants partially woody.

2. **TURNERA**.

1. **PIRIQUETA** Aubl. Herbs. Sepals slightly united. Stigmas 2-cleft.

Stem hirsute as well as tomentose.

1. *P. caroliniana*.

Stem merely tomentose.

2. *P. tomentosa*.

3 1. **P. caroliniana** (Walt.) Urban. Plants fulvous-hirsute, 1-4 dm. tall: leaf-blades obovate, oblong, cuneate, lanceolate, or rarely oval, 1-7 cm. long, repand or crenate-serrate: corolla deep-yellow: capsules 5-7 mm. long.—Pinelands and coastal sand-dunes, U. S. KEYS.—[E. K.]

2 2. **P. tomentosa** H.B.K. Plants stellate-tomentose, 2-4 dm. tall: leaf-blades oval, oblong, or rarely narrowly oblong-lanceolate, 1-4 cm. long, crenate-serrate:

<sup>1</sup> Incomplete specimens of both the following species of this genus appear to have been collected on Big Pine Key and Key West many years ago.

corolla bright-yellow: capsules 5-6 mm. in diameter.—Pinelands, L. keys.—[E. K.]

2. **TURNERA** L. Shrubs or shrubby plants. Flowers usually solitary and axillary. Corolla yellow. Stigmas 3, brush-like.

1. **T. ulmifolia** L. A shrubby plant 2 m. tall or less, with appressed-pubescent branchlets: leaf-blades ovate, varying to oblong, elliptic or spatulate, mostly 3-9 cm. long, serrate or crenate-serrate, 2-glandular at the base, short-petioled: calyx 14-17 mm. long; lobes lanceolate to ovate-lanceolate, acuminate: petioles yellow, 2.5-3 cm. long: capsules globular to ovoid, 8-10 mm. long.—Hammocks and waste places, Key West. Nat. of Trop. Am.—(Ber., Bah., Cuba, Ant.)

### Order PASSIFLOALES.

Herbs, vines, or shrubby plants, or succulent tree-like plants with milky sap. Leaves alternate: blades entire, toothed, or lobed. Flowers perfect or dioecious. Calyx of 4 or 5 more or less united sepals. Corolla of 4 or 5 distinct or united petals, sometimes accompanied by a fringed crown, or rarely wanting. Androecium of 5 stamens, or of 10 stamens in 2 unequal rows. Gynoecium of 3-5 united carpels. Ovary superior. Fruit a berry or a capsule.

Corolla not accompanied by a crown: flowers mainly dioecious, the staminate and pistillate different.

Fam. 1. PAPAYACEAE.

Corolla accompanied by a crown: flowers perfect, all alike.

Fam. 2. PASSIFLORACEAE.

#### FAMILY 1. PAPAYACEAE. PAPAW FAMILY.

Shrubs or trees. Leaves with ample 7-9-lobed blades. Corolla salverform. Stamens 10: filaments adnate to the corolla-tube. Anthers erect. Fruit baccate, borne near the top of the stem.

1. **CARICA** L. Plants with milky juice, the stem rather tender, simple or branched, much-scarred above. Leaf-blades palmately or pinnately lobed. Staminate flowers in long-peduncled cymes: pistillate flowers in short-peduncled cymes. Berries nearly sessile, many-seeded.

1. **C. Papaya** L. Stem 3-6 m. tall, simple, leafy at the top: leaf-blades 3-6 dm. broad, on stout spreading petioles: corolla yellow or reddish, that of the pistillate flower the larger: berry oblong to subglobose, 2-18 cm. long.—Hammocks, pinelands and waste places, U. S. keys, L. keys. Nat. of Trop. Am.—[E. K.]—(Ber., Bah., Cuba, Ant.)—PAPAW. CUSTARD-APPLE.

#### FAMILY 2. PASSIFLORACEAE. PASSION-FLOWER FAMILY.

Herbs, tendril-bearing vines, or shrubby plants. Leaves with entire or lobed, simple, or rarely compound blades. Corolla mostly rotate. Stamens 5: filaments usually monodelphous around the gynoecium. Fruit baccate.

1. **PASSIFLORA** L. Perennial vines. Leaf-blades entire, lobed, or parted. Crown filamentous, single, double, or triple. Anthers versatile.—PASSION-FLOWER.

Peduncles single: foliage glabrous or obscurely pubescent.  
Peduncles clustered: foliage tomentose or velvety.

1. *P. suberosa*.  
2. *P. multiflora*.

1. *P. suberosa* L. Twigs glabrous or minutely pubescent: leaf-blades entire to 3-lobed, mostly 2-10 cm. long: cymes 1-few-flowered: sepals linear to lanceolate or oblong, 4-6 mm. long: corolla wanting: crown mostly blue-tinged: berries 6-10 mm. in diameter: seeds about 3 mm. long.—Pinelands and hammocks, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber.*, *Bah.*, *Cuba*, *Ant.*)

2. *P. multiflora* L. Twigs velvety: leaf-blades oblong or nearly so, 5-12 cm. long, entire, rugose beneath: sepals 5-6 mm. long: petals linear or nearly so: berries subglobose, 6-8 mm. in diameter.—Hammocks, U. keys.—(*Bah.*, *Cuba*.)

### Order OPUNTIALES.

Succulent, typically spine-armed, herbs, shrubs, or trees, mainly leafless or essentially so, or leafy rigid herbs, with more or less specialized hairs. Flowers perfect. Hypanthium present. Calyx of 4 or 5, or many, sepals. Corolla of 4 or 5, or many, petals. Androecium of usually many stamens, in several series or groups, sometimes partially reduced to staminodia. Gynoecium of 4, or 2-several, united carpels. Ovary inferior. Fruit baccate or capsular.

Sepals and petals 4 or 5 each, very different: leaves with entire or dissected blades: erect or climbing plants, with rigid hairs. Fam. 1. LOASACEAE.

Sepals and petals nearly alike, at least the latter numerous: leaves typically mere scales or wanting: succulent plants, usually armed with spines. Fam. 2. OPUNTIACEAE.

#### FAMILY 1. LOASACEAE. LOASA FAMILY.

Rigid herbs with barbed or stinging hairs. Leaves with entire lobed, pinnatifid, or dissected blades.

1. *MENTZELIA* [Plum.] L. Brittle-stemmed, mostly diffuse or reclining herbs. Leaf-blades relatively broad, sinuate or lobed. Androecium without staminodia. Seeds angled.

1. *M. floridana* Nutt. Leaf-blades 2-9 cm. long, ovate to deltoid-ovate, toothed and 3-lobed: sepals lanceolate, often very broad at the base: petals golden-yellow, 15-18 mm. long: capsules 1-1.5 cm. long.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah.*)

#### FAMILY 2. OPUNTIACEAE. CACTUS FAMILY.

Succulent plants, typically spine-armed, and often with cushions of bristles or hairs at the base of the spines. Leaves mostly wanting, obsolete, or rudimentary.

Stems not jointed: leaves none or obsolete: areolae without barbed bristles: flowers nocturnal: perianth campanulate.

Plants prostrate, reclining, or climbing: stems angled.

Berry spiny: plants without aerial roots.

Berry scaly: plants with aerial roots.

Plants erect: stems and branches columnar, grooved.

Flowers short-campanulate: perianth green-purple: style exserted: berry smooth.

Flowers long-campanulate: perianth white: style included: berry scaly.

Stems jointed: leaves scale-like, deciduous: areolae with barbed bristles: flowers diurnal: perianth rotate.

1. ACANTHOCEREUS.

2. HYLOCEREUS.

3. CEPHALOCEREUS.

4. HARRISIA.

5. OPUNTIA.

1. *ACANTHOCEREUS* Britt. & Rose. Plants with erect or reclining stems and branches, the 3-6 angles low, the areolae remote, with several spines

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and short wool. Hypanthium elongate, with spine-bearing areolae. Corolla large, white, the petals, like the sepals, long and narrow. Berry spiny.

1. **A. pentagonus** (L.) Britt. & Rose. Stems and branches sometimes 8 m. long, the joints various, a 3-angled one often arising from a 5-angled one, deep-green: spines 5-8, the radial bristle-like or subulate, brittle, the central one 1-2 cm. long: corolla white, 9-12 cm. broad: fruits oval, 6-9 cm. long, deep-red, spiny. [*Cereus bazaniensis* Karw.]—Hammocks, U. keys.—[E. K.]—(*Cuba, Ant.*)

2. **HYLOCEREUS** Britton & Rose. Plants fleshy with climbing 3-angled or 3-winged stems and branches, with aerial roots, the areolae with several short spines and a tuft of short wool. Flowers nocturnal, conspicuous, very large. Hypanthium trumpet-shaped, with foliaceous scales, without spines or wool. Sepals various, the outer ones resembling the hypanthium-scales, the inner resembling the petals. Petals narrow, mostly white. Fruits fleshy, globose or ovoid, with broad scales.

1. **H. tricostatus** (Gosselin) Britton & Rose. Stems reclining or climbing, elongate, branched, the branches often rooting at the joints, 3-angled or 3-winged, the joints commonly 32 cm. long, 5-7.5 cm. broad, occasionally twisted, with remote areolae: spines 3-5, rigid, blackish, 2-4 mm. long, upper ones shorter than the lower: flowers white, 20 cm. broad: fruits ovoid, commonly 10 cm. long, scarlet.—Hammocks, Key West. Nat. of Mexico.—[E. K.]—(*Ber., Cuba, Ant.*)—NIGHT-BLOOMING CEREUS.

3. **CEPHALOCEREUS** Pfeiff. Plants fleshy with ribbed erect branched stems, the upper areolae often developing wool. Flowers nocturnal, relatively small, one from an areole. Hypanthium short, funnel-form, with few scales. Sepals and petals fleshy. Ovary globular, spineless. Fruits fleshy, smooth, relatively small, globular or depressed. Seeds reticulate, shining.

1. **C. keyensis** Britton & Rose. Stem and branches erect or nearly so, becoming 5 or 6 m. tall, glaucous, the 9 or 10 ribs separated by deep grooves: areolae 1-2 cm. apart, slightly elevated: spines acicular, about 15, yellow, 15 mm. long, or less: flowers brownish-purple, about 6 cm. long, garlic-scented when opening in the late afternoon or evening: sepals oblong-spatulate, blunt-tipped: petals acutish: fruits spheroidal, about 3.5 cm. thick, reddish.—Hammocks, Key West.

4. **HARRISIA** Britton. Plants fleshy with cylindric stems and fluted branches, the areolae bearing several slender spines. Flowers nocturnal, relatively large, borne near the ends of the branches. Hypanthium cylindric, spineless, scaly. Sepals colored. Petals white. Fruits fleshy, tubercled when young, globose to ovoid, spineless, but scaly. Seeds small, often black.

1. **H. Brookii** Britton. Stem and branches reclining or suberect, sometimes 5 m. tall, prominently 10-ribbed: areolae 2 cm. apart: spines whitish, 9-12, the longer ones 2-2.5 cm. long: fruits ellipsoid, globose, or spheroidal, rounded at both ends, about 8 cm. long, yellowish, the tubercles with tips about 1.5 mm. high, becoming smooth.—Hammocks, U. keys, L. keys.—(*Bah.*)

5. **OPUNTIA** [Tourn.] Mill. Plants conspicuously jointed, with separated usually spine-bearing areolae. Flowers arising from the areolae. Perianth rotate, mostly yellow or salmon. Fruits pyriform and fleshy in the following species. Style cylindric.—PRICKLY-PEAR.



Plants diffuse, with tubers.

Plants erect, copiously branched, without tubers.

Spines copious: corolla yellow.

Spines none, or imperfectly developed: corolla salmon to yellow.

1. *O. austrina*.

2. *O. Dillenii*.

3. *O. inermis*.

1. *O. austrina* Small. Plants woody at the base, the roots tuber-bearing, the joints broadly obovate or orbicular-obovate, deep-green, 5-11 cm. long, or rarely somewhat longer, the early deciduous leaves mostly less than 10 mm. long: spines mainly above the middle of the joints and near the edge, usually 2 together but one of them very small or deciduous, whitish or pinkish, and reddish near the base and apex, twisted: flowers bright-yellow, 6-7 cm. broad: petals cuneate, truncate or retuse at the slightly eroded top, and mucronate: fruits 2.5-3 cm. long.—Coastal sand-dunes, U. S. keys.

2. *O. Dillenii* (Ker.) Haw. Stems erect, 9-12 dm. tall, proliferous, the joints oval or elliptic, 10-20 cm. long: areolae remote above, with clusters of 4-6 stout rigid flattened yellow spines, varying from very short to 3.5 cm. in length: flowers yellow or reddish yellow, 7.5-10 cm. broad: fruits rather pear-shaped, 5-6 cm. long, edible.—Hammocks, U. keys, L. keys, L. S. keys.—(*Bah., Cuba, Ant.*)

3. *O. inermis* DC. Stems much-branched, 12-18 dm. tall, proliferous, the joints thick, obovate to elliptic, 10-15 cm. long: areolae distant, 2-3 cm. apart, spineless or sometimes with a single long spine: flowers yellow to salmon, 7.5-10 cm. broad: fruits obovoid, bristly, 5-6 cm. long, edible, the pulp red.—U. keys, L. keys.

### Order THYMELEALES.

Shrubs or trees, or partially herbaceous plants. Leaves opposite or alternate, the blades simple, rarely mere scales, or obsolete. Flowers perfect, polygamous, or dioecious, regular or nearly so. Calyx of 5, or fewer, sepals. Corolla wanting (in our species). Androeceium of as many stamens as there are sepals, or twice as many. Anthers opening by slits or hinged valves. Gynoeceium of a single carpel. Ovary superior. Ovule mostly solitary. Fruit usually baccate or drupaceous.

Leafy shrubs or trees: fruit seated on the hypanthium. Fam. 1. LAURACEAE.

Leafless, twining, parasitic vines: fruit enclosed in the accrescent hypanthium.

Fam. 2. CASSYTHACEAE.

### FAMILY 1. LAURACEAE. LAUREL FAMILY.

Aromatic shrubs or trees. Leaves alternate or opposite: the blades entire or lobed. Flowers in open or congested cymes. Perianth of 6 (rarely 4-10) sepals in 2 series. Androeceium of usually more stamens than there are sepals, in 2-4 series, those of the third series usually glandular appendaged, those of the fourth series mostly mere staminodia. Gynoeceium a single carpel. Ovary 1-celled. Drupe not included.

Calyx persistent: fruit seated in the calyx.

1. TAMALA.

Calyx deciduous: fruit seated in the hypanthium.

Fruit oblique: hypanthium not fleshy.

2. PERSEA.

Fruit not oblique: hypanthium fleshy.

3. OCOTEA.

1. *TAMALA* Raf. Shrubs or trees. Leaves alternate, persistent: blades entire. Flowers in axillary peduncled cymes. Sepals 6, dissimilar. Style long-columnar: stigma capitate. Drupe equilateral.

1. *T. pubescens* (Pursh) Small. Shrub or small tree, its twigs, lower leaf-surfaces and inflorescence tomentose: leaf-blades narrowly elliptic or elliptic-

lanceolate, or rarely oval, 5–20 cm. long: sepals erect, the inner oblong-ovate, about twice as long as the outer: fruits oval, 8–11 mm. long, dark-blue with a thin bloom.—Low hammocks and lime-sinks, L. keys.—[E. K.]—(*Bah.*)—SWAMP-BAY. SWAMP RED-BAY.

2. **PERSEA** [Plum.] Gaertn. Trees. Leaves alternate, persistent blades entire. Flowers in terminal paniced cymes. Sepals 6, nearly equal, united at the base. Style subulate: stigma minute. Drupe inequilateral.

1. **P. Persea** (L.) Cockerell. Large tree: leaf-blades elliptic or oval or nearly so, 8–15 cm. long, short-petioled (relatively small and with long and slender petioles in *P. Persea mexicana*): inner sepal 4–5 mm. long, somewhat surpassing the outer: fruits slightly elongate, often pyriform, 8–18 cm. long, the flesh butter-like.—Hammocks and pinelands, U. keys, L. keys. Nat of Trop. Am.—[E. K.]—(*Cuba, Ant.*)—AVOCADO. ALLIGATOR-PEAR.

3. **OCOTEA** Aubl. Shrubs or trees. Leaves alternate, persistent: blades entire. Flowers in paniced cymes. Sepals 6, nearly similar. Style cylindric. Stigma capitate. Drupe somewhat elongate.

1. **O. Catesbyana** (Michx.) Sarg. Shrub or small tree: leaf-blades narrowly elliptic or elliptic-lanceolate, 5–12 cm. long, lustrous above: calyx creamy-white, 8–9 mm. broad; sepals obtuse: drupes subglobose or oval, 10–15 mm. long, dark-blue or black, seated in the yellow or red hypanthium.—Hammocks, U. keys.—[E. K.]—(*Bah.*)—LANCEWOOD.

## FAMILY 2. CASSYTHACEAE. CASSYTHA FAMILY.

Parasitic vines. Leaves mere scales, or wanting. Flowers perfect, in heads, spikes, or racemes. Calyx of 6 sepals in 2 unequal series, surmounting the accrescent hypanthium. Androeceium of 9 stamens with 2-celled anthers, and 3 staminodia. Gynoeceium of a single carpel. Drupe included.

1. **CASSYTHA** [Osbeck] L. Vines with yellow or pale-green stems and branches, clinging to herbs and shrubs.

1. **C. filiformis** L. Stems matted, yellowish-green: flowers 3–6 in a spike: inner sepals triangular-ovate, 2–3 times larger than the outer: drupe globose, 5–7 mm. in diameter or rarely larger.—Coastal sand-dunes, hammocks, and pinelands, U. S. keys, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

## Order MYRTALES.

Herbs, shrubs, or trees, sometimes aquatic or amphibious. Leaves alternate or opposite. Flowers regular or irregular, complete or much reduced. Hypanthium merely enclosing the ovary or adnate to it. Calyx surmounting the hypanthium, the sepals distinct or rarely permanently united. Corolla present or wanting. Androeceium of few or many stamens: anthers opening by slits or pores. Gynoeceium 1–several-carpellary. Fruit capsular, baccate, or achene-like.

Anthers opening by pores.

Fam. 1. MELASTOMACEAE.

Anthers opening by longitudinal valves.

Hypanthium merely enclosing the ovary.

Fam. 2. LYTHRACEAE.

Hypanthium adnate to the ovary or mainly so.

Cotyledons spirally convolute in the embryo.

Ovary several-celled: ovules numerous, not pendulous.

Fam. 3. PUNICACEAE.

- |  |                                |
|--|--------------------------------|
| Ovary 1-celled: ovules 2-5, pendulous.                           | Fam. 4. <b>TERMINALIACEAE.</b> |
| Cotyledons not spirally convolute.                               |                                |
| Sepals imbricated or united and the calyx falling away as a cap. | Fam. 5. <b>MYRTACEAE.</b>      |
| Sepals valvate.  |                                |
| Leaves stipulate: sepals leathery.                               | Fam. 6. <b>RHIZOPHORACEAE.</b> |
| Leaves not stipulate: sepals membranous or herbaceous.           | Fam. 7. <b>EPILORACEAE.</b>    |

### FAMILY 1. **MELASTOMACEAE.** MEADOW-BEAUTY FAMILY.

Herbs, shrubs, or trees. Leaves opposite: blades with 3-several ribs. Flowers perfect. Calyx of 3-6 sepals, surmounting the hypanthium. Corolla of 3-6 oblique petals. Androecium of 6-12 stamens, those opposite the petals sometimes abortive. Gynoecium of 3-5 united carpels. Ovary enclosed in or adnate to the hypanthium. Fruit baccate or capsular.

1. **RHEXIA** L. Perennial herbs with rootstocks. Leaf-blades usually 3-5-ribbed. Hypanthium urceolate, prolonged beyond the ovary. Sepals 4. Petals 4, deciduous. Ovary 4-celled, free. Capsule included, 4-valved.—MEADOW-BEAUTY.

1. **R. serrulata** Nutt. Stems 5-30 cm. tall: leaf-blades ovate, oval, or sub-orbicular, 0.5-1 cm. long: petals purple, about 10 mm. long: capsules about 4 mm. long, spheroidal.—Low pinelands and open hammocks, L. keys.—[E. K.]

### FAMILY 2. **LYTHRACEAE.** LOOSESTRIFE FAMILY.

Herbs, shrubs, or tropical trees. Leaves mostly opposite: blades usually entire. Flowers perfect. Calyx of 4 or 5 sepals, commonly accompanied by accessory teeth. Corolla of 4 or 5 petals, or wanting. Androecium of few or many stamens: anthers versatile. Gynoecium of mostly 2-6 united carpels. Ovary 2-6-celled, or rarely 1-celled, free from the hypanthium. Fruit a capsule, included.

Hypanthium short, becoming hemispheric or globose.

Capsule bursting irregularly.

Capsule septicidal.

Hypanthium elongate, becoming tubular.

1. **AMMANNIA.**

2. **ROTALA.**

3. **LYTHRUM.**

1. **AMMANNIA** L. Leathery-succulent herbs. Leaf-blades narrow, often auricled at the base. Flowers in axillary, sometimes 1-flowered, cymes. Sepals 4, involute, often accompanied by small teeth. Petals 4, early deciduous, or wanting.

1. **A. latifolia** L. Plants 2-11 dm. tall: leaf-blades linear-oblong to linear-lanceolate, mostly 3-7 cm. long, slightly auricled and clasping at the base: corolla wanting: capsules 4-5 mm. in diameter.—Low hammocks and lime-sinks, U. S. keys, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

2. **ROTALA** L. Herbs resembling *Ammannia*. Leaf-blades narrow, entire. Flowers usually solitary in the axils. Sepals 4, accompanied by appendages in the sinuses. Petals usually 4. Stamens 4. Style very short.

1. **R. ramosior** (L.) Koehn. Stems 0.5-4 dm. long: leaf-blades oblong to linear or spatulate, 1-3 cm. long: sepals acute: petals obovate or cuneate, as long as the sepals or longer: capsules 2.5-3.5 mm. in diameter.—Hammocks and sandy places, Key West.—(*Ant.*)

3. **LYTHRUM** L. Herbs or shrubs. Leaf-blades entire. Flowers axillary or in terminal spikes or racemes. Sepals 4-6, not involute, alternating with spreading appendages. Petals 4-6, nearly equal.

1. **L. lineare** L. Stems 3-12 dm. tall: leaf-blades linear, 1-4 cm. long: mature hypanthium about 4 mm. long, the appendages triangular, about as long as the deltoid sepals: petals cuneate or cuneate-oblong, 4-5 mm. long: capsules barely 4 mm. long.—Coastal sand-dunes and open hammocks, U. S. keys, U. keys.—LOOSESTRIPE.

### FAMILY 3. PUNICACEAE. POMEGRANATE FAMILY.

Shrubs or trees. Leaves opposite or nearly so, persistent: blades entire. Flowers perfect, solitary or in short axillary clusters. Hypanthium leathery. Calyx of 5-7 sepals. Corolla of 5-7 wrinkled petals. Androecium of numerous stamens in several series: anthers versatile. Gynoecium of several united carpels. Ovary inferior. Fruit a several-celled berry crowned with the calyx, the seeds in a watery pulp.

1. **PUNICA** [Tourn.] L. Leaf-blades entire. Flowers showy. Sepals persistent on the fruit. Petals deciduous. Berry pendulous.

1. **P. Granatum** L. Leaf-blades oval, elliptic, or oblong, varying to broadest above or below the middle, 1-8 cm. long: sepals triangular or triangular-lanceolate: petals scarlet, 1.5-2.5 cm. long: berries subglobose or spheroidal, 5-10 cm. in diameter.—Hammocks and roadsides, Key West. Nat. of the Orient.—[E. K.]—(Ber., Ant.)—POMEGRANATE.

### FAMILY 4. TERMINALIACEAE. WHITE-MANGROVE FAMILY.

Shrubs or trees, or woody vines. Leaves alternate or opposite: blades simple, leathery. Flowers regular, perfect or polygamous, racemose or capitate. Calyx of 4 or 5 valvate deciduous or rarely persistent sepals. Corolla of 4 or 5 petals, or wanting. Androecium of twice, or rarely thrice, as many stamens as the sepals. Filaments distinct. Gynoecium a single carpel. Ovary 1-celled. Fruit drupaceous or berry-like, indehiscent. Often crowned with the accrescent calyx.

Sepals deciduous: corolla wanting.

Flowers in heads: hypanthium flattened: fruits small, in a cone-like head.

Flowers in spikes: hypanthium terete: fruits separate, large.

Sepals persistent.

Corolla wanting: leaves alternate.

Corolla present: leaves opposite.

1. CONOCARPUS.

2. TERMINALIA.

3. BUCIDA.

4. LAGUNCULARIA.

1. **CONOCARPUS** L. Shrubs or trees. Leaves alternate. Flowers perfect, in spicate or panicle heads. Hypanthium not ribbed. Stamens 5. Fruit capitate.

1. **C. erecta** L. Shrub, or tree, sometimes 20 m. tall: leaf-blades elliptic to oval, 2-5 cm. long, entire: heads 9-14 mm. in diameter at maturity: drupes 2-winged, 4-7 mm. long.—Hammocks, sand-dunes, and shores, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(Ber., Bah., Cuba, Ant.)—BUTTONWOOD.

2. **TERMINALIA** L. Shrubs or trees. Leaves clustered near the ends of the branches. Flowers in simple or branched spikes. Hypanthium not ribbed. Stamens 10.



1. **T. Catappa** L. Shrub, or tree sometimes 17 m. tall: leaf-blades cuneate to oblanceolate: spikes 5-15 cm. long: hypanthium and calyx 8-11 mm. long: drupes elliptic or nearly so, glabrous.—Pinelands and old fields. Nat. of the E. Indies and Oceanica; escaped from cult., U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—INDIAN-ALMOND.

3. **BUCIDA** L. Shrubs or trees. Leaves relatively small, clustered at the ends of the branches. Flowers in simple or branched spikes, often crowded. Hypanthium terete. Stamens 10. Fruits in short spikes.

1. **B. Buceras** L. A tree sometimes 15 m. tall: leaf-blades spatulate to obovate, oval or elliptic: spikes 2-10 cm. long: hypanthium and calyx 4-5 mm. long: calyx-lobes shorter than the tube: drupes ovoid-conic or flask-shaped, pubescent.—Hammocks, Elliott's Key.—(*Bah., Cuba, Ant.*)

4. **LAGUNCULARIA** Gaertn. f. Shrubs or trees. Leaves opposite. Flowers polygamous, in simple or branched spikes. Hypanthium ribbed. Petals mostly shorter than the sepals. Stamens 10. Fruit spicate or paniculate.

1. **L. racemosa** (L.) Gaertn. f. Shrub, or tree sometimes 20 m. tall: leaf-blades leathery-succulent, oblong, varying to oval or obovate, 2-5 cm. long, entire: spikes 3-6 cm. long: drupes oblong-obovoid, 2 cm. long.—Coastal hammocks, U. S. keys, U. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—WHITE-BUTTONWOOD. WHITE-MANGROVE.

#### FAMILY 5. MYRTACEAE. MYRTLE FAMILY.

Shrubs or trees, or rarely herbs, with pungent and aromatic volatile oil. Leaves opposite, or rarely alternate or whorled: blades often simple, pellucid-punctate, flat to terete, often with veins parallel to the margins. Flowers perfect, regular. Calyx of 4 or 5, or many, persistent sepals or cup-like and deciduous. Corolla borne on the margin of a hypanthium, or wanting. Androeceum of numerous stamens, or rarely of as many as the sepals. Gynoeceum compound. Ovary inferior or partly so, 1-many-celled. Fruit usually fleshy, sometimes deliscent, often crowned with the calyx.

Calyx of several persistent valvate sepals: petals present.

Calyx of regularly separating sepals.

Inflorescence centripetal: flowers in raceme-like umbel-like or contracted clusters.

Inflorescence centrifugal: flowers in cymes.

Calyx of irregularly separating sepals.

Calyx lid-like, deciduous: petals wanting.

1. **EUGENIA.**

2. **ANANOMIS.**

3. **PSIDIUM.**

4. **CALYPTRANTHES.**

1. **EUGENIA** [Mich.] L. Shrubs or trees. Leaf-blades not prominently ribbed. Flower-clusters short-peduncled or sessile. Berry crowned with the persistent calyx. Seeds 1-4.—STOPPER.

Flowers in very short racemes.

Leaf-blades broadest above the middle: fruit longer than broad.

Leaf-blades broadest below the middle: fruit broader than long.

Flowers solitary in the axils, or in umbel-like clusters.

Leaf-blades acute or slightly acuminate: corolla about 10 mm. broad: fruit much broader than long.

Leaf-blades abruptly and conspicuously acuminate: corolla about 6 mm. broad: fruit as long as broad.

Leaf-blades abruptly and conspicuously acuminate: corolla about 6 mm. broad: fruit as long as broad.

1. *E. buxifolia.*

2. *E. axillaris.*

3. *E. rhombica.*

4. *E. confusa.*

1. **E. buxifolia** (Sw.) Willd. Shrub or small tree, the bark scaly: leaf-blades cuneate to nearly oblong, 2-4 cm. long, much paler beneath than above: corolla 4-15 mm. broad; petals longer than wide: fruits oval or oblong-oval, 6-7 mm. broad, black.—Hammocks, U. S. keys, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—SPANISH-STOPPER.



2. *E. axillaris* (Sw.) Willd. Shrub or small tree, the bark fissured: leaf-blades elliptic-ovate to nearly elliptic, 3-5 cm. long, slightly paler beneath than above: corolla 5-6 mm. broad; petals mostly wider than long: fruits spheroidal, 10-12 mm. broad, black. [*E. monticola* Chapm.]—Hammocks, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—WHITE-STOPPER.

3. *E. rhombea* (Berg) Urban. Tree, the bark smooth: leaf-blades ovate to elliptic, 3-6 cm. long, slightly acuminate: corolla 12-14 mm. broad; petals slightly longer than the sepals: fruits spheroidal, 16-22 mm. broad, orange tinged with red, or black at maturity.—Hammocks, L. keys.—(*Bah., Cuba, Ant.*)—RED-STOPPER.

4. *E. confusa* DC. Tree, the bark scaly: leaf-blades ovate, oval-ovate, or oblong-ovate, 3-5 cm. long, markedly acuminate: corolla 4-6 mm. broad; petals about twice as long as the sepals: fruits subglobose or globose-obovoid, 5-6 mm. broad, scarlet. [*E. Garberi* Sarg.]—Hammocks, U. keys.—[E. K.]—(*Bah., Ant.*)—IRONWOOD.

2. **ANANOMIS** Griseb. Shrubs or trees. Leaf-blades not ribbed. Cymes sessile or long-peduncled, sometimes 1-flowered. Berry crowned with the persistent calyx. Seeds 1 or 2 or many.—NAKED-STOPPER. NAKEDWOOD.

Cymes markedly peduncled and several-flowered: sepals suborbicular or reniform: petals 3-4 mm. long: seeds 1 or 2, large. 1. *A. dicrana*.

Cymes usually sessile and 1-flowered: sepals oblong to ovate:

petals 6-8 mm. long: seeds numerous, small, shining.

Petals 4-5 mm. long: calyx less than 1 cm. wide.

Petals 6-7 mm. long: calyx over 1 cm. wide.

2. *A. longipes*.

3. *A. bahamensis*.

1. *A. dicrana* (Berg) Britton. Shrub, or tree becoming 8 m. tall: leaf-blades oblong to cuneate or obovate-cuneate, 2-4 cm. long: terminal flowers of each cyme sessile: corolla 8-9 mm. wide; petals white, fully twice as long as the sepals: fruits 6-7 mm. in diameter: seeds dull. [*Ananomis dichotoma* Sarg.]—Hammocks, L. keys.—[E. K.]—NAKED-STOPPER.

2. *A. longipes* (Berg) Britton. Shrub with prostrate-diffuse or sometimes erect stems, or rarely a small tree: leaf-blades mainly ovate or oval, 1-3.5 cm. long, finely reticulate: terminal flower of each cyme long-stalked; corolla 12-14 mm. wide; petals white or pink, much longer than the sepals: fruits 6-9 mm. in diameter. [*Eugenia longipes* Berg.]—Pinelands, L. keys.—[E. K.]—(*Bah.*)—LONG-STALKED STOPPER.

3. *A. bahamensis* (Kiaersk.) Britton. Shrub with diffuse branches or a small tree: leaf-blades orbicular, oval, or elliptic, or somewhat ovate, mostly 2-4 cm. long, very thick, shining above, obscurely reticulate beneath: peduncles and pedicels strongly flattened: corolla about 1.5 cm. wide; petals white or nearly so: fruits about 1 cm. in diameter. [*Eugenia bahamensis* Kiaersk.]—Pinelands, Big Pine Key.—(*Bah.*)—BAHAMAN-STOPPER.

3. **PSIDIUM** L. Shrubs or trees. Leaf-blades prominently many-ribbed. Flowers solitary or few together. Fruit crowned with the persistent calyx. Seeds very numerous.

1. *P. Guajava* Raddi. Shrub, or tree sometimes 8 m. tall: leaf-blades oblong or nearly so, 4-8 cm. long, pubescent beneath: sepals 9-15 mm. long: petals 15-20 mm. long: berries globular or pyriform, 3-6 cm. in diameter.—Hammocks, pinelands, roadsides and cultivated grounds, U. keys, L. keys. Nat. of Trop. Am.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—GUAVA.

4. **CALYPTRANTHES** Sw. Shrubs or trees. Leaf-blades not ribbed. Flowers in terminal panicles. Calyx cap-like, deciduous. Berry crowned with the top of the hypanthium. Seeds 1 or 2. [*Chytraculia* P. Br.]—STOPPER.

- 433 1. *C. pallens* (Poir.) Griseb. A shrub, or tree becoming 9 m. tall, the bark light-gray or nearly white, smooth or ultimately scaly, the branchlets 2-edged: leaf-blades elliptic or oval, varying to broader above or below the middle, 3-5 cm. long, or rarely larger, mostly short-acuminate, pubescent beneath, at least when young, manifestly petioled: inflorescence pubescent: hypanthium about 2 mm. wide in anthesis: calyx pubescent, less than 2 mm. in diameter: fruits subglobose or oval, 5-7 mm. in diameter, pubescent: seeds about 4 mm. long.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—SPICEWOOD.

84 FAMILY 6. RHIZOPHORACEAE. MANGROVE FAMILY.

Shrubs or trees. Leaves usually opposite: blades entire or toothed. Flowers perfect, solitary or variously clustered. Calyx of 3 or 4 valvate sepals. Corolla of 3 or 4 thick petals. Androecium of twice or thrice as many stamens as sepals, or of 4 times as many. Gynoecium of 2-5 united carpels. Ovary inferior, at least partly so. Styles mostly united. Fruit a leathery berry crowned with or surrounded by the calyx.

1. *RHIZOPHORA* L. Evergreen trees. Leaf-blades leathery. Flowers 2-several in peduncled clusters. Sepals 4, leathery. Petals 4, leathery. Stamens 4-12. Ovary 2-celled, produced into a fleshy cone at maturity. Fruit pendulous, the seed germinating and sending out a long radicle before the fruit falls.

- 234 1. *R. Mangle* L. Shrub, or tree becoming 10 m. tall, forming impenetrable thickets on salt or brackish shores: leaf-blades elliptic to elliptic-obovate, 5-15 cm. long: sepals lanceolate, about 10 mm. long: petals pale-yellow, linear or nearly so: fruits 2-3 cm. long, the precocious radicle clavate.—Salt and brackish shores and coastal hammocks, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—MANGROVE.

85 FAMILY 7. EPILOBIACEAE. EVENING-PRIMROSE FAMILY.

Herbs or rarely shrubs. Leaves alternate or opposite: blades simple. Flowers typically perfect. Hypanthium often elongate. Calyx of 2-6, usually 4, sepals. Corolla of 2-9, usually 4, petals, or rarely wanting. Androecium of as many stamens as the sepals or twice as many. Gynoecium of several, usually 4, united carpels. Ovary 1-6-celled, usually 4-celled, inferior. Fruit capsular or nut-like.

Fruit a many-seeded capsule.

Hypanthium not prolonged beyond the ovary.

Hypanthium prolonged beyond the ovary.

Fruit nut-like, indehiscent.

1. LUDWIGIA.

2. RAIMANNIA.

3. GAURA.

86 1. *LUDWIGIA* L. Annual or perennial herbs. Leaf-blades entire or rarely shallowly toothed. Flowers axillary or terminal. Sepals generally persistent. Petals usually 4. Ovary usually 4-celled. Capsule cylindric or prismatic to subglobose.

- 35 1. *L. microcarpa* Michx. Plants low or depressed: leaf-blades spatulate or obovate-spatulate, 0.5-3 cm. long: sepals triangular: petals wanting: capsules broadly obpyramidal, 1.5-2 mm. long.—Hammocks and lime-sinks, L. keys.—[E. K.]—(*Bah., Ant.*)

2. *RAIMANNIA* Rose. Annual, biennial, or perennial herbs. Leaf-blades sinuate or pinnatifid. Flowers axillary, sometimes aggregated in a

spike, nocturnal. Petals yellow. Ovary slender. Capsule narrowly cylindric, or rarely slightly tapering. Seeds tubercled.

1. *R. humifusa* (Nutt.) Rose. Branches silky-canescant: blades of the cauline leaves oblanceolate to lanceolate, undulate, repand or toothed: sepals about  $\frac{1}{2}$  as long as the hypanthium: petals 8-13 cm. long: capsules 3-3.5 mm. in diameter. [*Oenothera humifusa* Nutt.]—Coastal sand-dunes, U. S. keys.—[E. K.]—(Ber.)—EVENING-PRIMROSE.

3. *GAURA* L. Annual, biennial, or perennial herbs. Leaf-blades entire, toothed, or pinnatifid. Flowers spicate or racemose. Hypanthium narrow, somewhat prolonged beyond the ovary. Petals unequal, with clawed blades. Stamens 8, declined. Style declined. Stigma 4-lobed, surrounded by a cup-like border. Fruit ribbed or angled.

1. *G. simulans* Small. Stems 9-20 dm. tall, loosely pubescent below: blades of the stem-leaves oblanceolate or narrowly spatulate to lanceolate or linear-lanceolate, 2-12 cm. long, pinnatifid to sharply toothed: sepals broadly linear, rather obtuse: petals pinkish, 4.5-5 mm. long: fruits, 8-10 mm. long, glabrous.—Coastal sand-dunes, U. S. keys.—[E. K.].

### Order AMMIALES.

Herbs, shrubs, trees, or vines. Leaves alternate or opposite: blades simple or compound. Flowers perfect, polygamous, or dioecious, often borne in umbels. Calyx of typically 5 small petals, surmounting the hypanthium. Corolla typically of 5 petals, or wanting. Androeceium of as many stamens as the sepals. Gynoeceium 2-carpellary, or rarely several-carpellary or 1-carpellary. Ovary inferior. Fruit drupaceous or baccate, or dry and then a cremocarp.

#### FAMILY 1. AMMIACEAE. CARROT FAMILY.

Herbs with hollow stems. Leaves typically alternate: blades dissected, or sometimes merely toothed, or entire. Flowers perfect or polygamous, umbellate. Calyx of 5 tooth-like sepals, or obsolete. Corolla of 5 petals. Androeceium of 5 stamens. Gynoeceium of 2 united carpels, often with a stylopodium. Fruit dry, a cremocarp, the ribbed or winged carpels separating at maturity.

Fruits with narrow-winged lateral ribs; dorsal ribs narrowly winged: corolla yellow: involucre and involucels wanting. 1. *ANETHUM*.

Fruits with broad-winged lateral ribs; dorsal ribs merely filiform: corolla white: involucre and involucels present. 2. *OXYPOLIS*.

1. *ANETHUM* L. Annual or biennial herbs. Leaves alternate: blades decompound, the segments narrowly linear or linear-filiform. Flowers in naked compound umbels. Hypanthium truncate. Petals yellow. Stylopodium depressed. Styles short. Fruit slightly elongate, flattened dorsally: carpels ribbed and with narrow lateral wings.

1. *Anethum graveolens* L. Plants 1 m. tall or less, glaucous: leaf-segments numerous: umbels many-flowered, the rays unequal: sepals minute: petals ovate to orbicular, 1 mm. long or less: fruits oblong to oval-oblong, 4.5-5 mm. long, glaucous.—Hammocks and cultivated grounds, U. keys. Nat. of Eu.—(Bah., Cuba, Ant.)—DILL.

2. **OXYPOLIS** Raf. Perennial herbs. Leaf-blades pinnate or ternate, or rarely reduced to hollow septate phyllodia. Umbels compound. Sepals acute. Petals white. Fruit longer than broad, dorsally flattened: carpels with the dorsal and contiguous ribs thin, and winged lateral ribs, the latter nerved near the inner part of the wing: oil-tubes solitary in the intervals and 2-6 in the inner face.

1. **O. filiformis** (Walt.) Britton. Plants 5-18 dm. tall: phyllodia 3-60 cm. long: fruits oblong-oval or oval-obovate, 5-6 mm. long, broadly winged.—Low pinelands and lime-sinks, L. keys.—[E. K.]

## Series 2. GAMOPETALAE.

Petals more or less united, or occasionally distinct, or very rarely wanting.

### Order PRIMULALES.

Herbs, shrubs, trees, or vines. Leaves alternate or opposite, sometimes all basal. Flowers perfect or polygamo-dioecious, variously disposed. Calyx of several partially united sepals. Corolla of 2-several distinct or partially united petals. Androeceium of as many stamens as there are sepals, or petals, and sometimes accompanied by staminodia. Gynoeceium of 4-6 united carpels, or rarely more. Fruit capsular or drupaceous, or rarely an achene or utricle.

Styles distinct: fruit an achene or utricle: ovule 1. Fam. 1. ARMERiaceae.

Styles united: fruit capsular or drupe-like: ovules several. Fam. 2. PRIMULaceae.

Herbs: ovules or seeds not immersed: fruit capsular. Fam. 2. PRIMULaceae.

Shrubs or trees: ovules or seeds immersed: fruit drupe-like.

Staminodia at the sinuses of the corolla-lobes: fruit containing few or many seeds. Fam. 3. THEOPHRASTaceae.

Staminodia wanting: fruit containing a single seed. Fam. 4. ARDISIaceae.

## FAMILY 1. ARMERiaceae. PLUMBAGO FAMILY.

Perennial or rarely annual herbs, or shrubby plants, or vines. Leaves alternate, the bases dilated or clasping: blades entire. Flowers perfect, in heads, spikes, or cymes. Calyx of 4 or 5 partially united sepals, the tube ribbed. Corolla of 4 or 5 petals, the claws distinct or united. Androeceium of 4 or 5 stamens opposite the petals. Gynoeceium of 4 or 5 united carpels. Styles or stigmas distinct. Fruit an achene or a utricle.

Calyx not glandular: styles distinct or united at the base: petal-claws distinct or nearly so. 1. LIMONIUM.

Calyx glandular: styles united to near the top: petal-claws united into a tube. 2. PLUMBAGO.

1. **LIMONIUM** [Tourn.] Hill. Shrubby herbs with short leafy caudices and nearly naked flower-stems. Flowers in compound cymes. Calyx funnel-form, the limb scarious and plicate. Corolla funnel-form.—SEA-LAVENDER. MARSH-ROSEMARY.

Leaf-blades oblong to broadly spatulate.  
Leaf-blades linear.

1. *L. brasiliense*.  
2. *L. angustum*.



1. *L. brasiliense* (Boiss.) Small. Leaf-blades oblong, 6-12 cm. long, rounded or refuse at the apex: flower-stems 2-5 dm. tall: bracts oval, obtuse: calyx about 3-4 mm. long; lobes round-ovate: corolla white.—Sand-dunes, hammocks, and rocky thickets, U. S. keys, U. keys.

2. *L. angustatum* (A. Gray) Small. Leaf-blades linear, 4-7 cm. long, cuspidate at the apex: flower-stems about 3 dm. tall: bracts broadly oblong, acute: calyx about 5 mm. long; lobes 5, ovate: corolla white or pinkish—Salt marshes, Big Pine Key.

2. **PLUMBAGO** L. Shrubby herbs with leafy stems or vines. Flowers in terminal spikes. Calyx tubular with stalked glands, the lobes erect, with hyaline sinuses. Corolla salverform.

1. *P. scandens* L. Stems 5-12 dm. long, branched: leaf-blades oblong to oblong-lanceolate or ovate, 2-10 cm. long, undulate: spikes 2-8 cm. long: calyx about 10 mm. long, the lobes minutely hooked: corolla white or purplish; lobes oblong to cuneate, mucronate: utricle invested by the hardened calyx.—Hammocks, Key West.—(*Bah., Cuba, Ant.*)—LEADWORT.

## FAMILY 2. PRIMULACEAE. PRIMROSE FAMILY.

Herbs, various in habit. Leaves alternate, opposite, or whorled, sometimes all basal: blades entire, toothed, or rarely dissected. Flowers perfect. Calyx of 4-9 partially united sepals, commonly persistent. Corolla of 4-9 partially united petals, or rarely wanting. Androecium of as many stamens as there are sepals and alternate with them, sometimes with staminodia. Gynoecium a single pistil, with a central placentae: style single. Fruit a 1-celled, 2-8-valved capsule.

Corolla exceeding the calyx: ovary partly inferior.

Staminodia present: corolla-lobes longer than the tube.

Staminodia wanting: corolla-lobes shorter than the tube.

Corolla not exceeding the calyx: ovary superior.

1. SAMOLUS.

2. SAMODIA.

3. CENTUNCULUS.

1. **SAMOLUS** [Tourn.] L. Caulescent herbs. Leaves alternate: blades entire. Flowers in simple or branched, sessile or nearly sessile racemes. Calyx perigynous: lobes 5. Corolla perigynous: lobes 5, with staminodia at the sinuses. Stamens 5: filaments very short, adnate to the base of the very short corolla-tube. Ovary and capsule  $\frac{1}{2}$  inferior.

1. *S. floribundus* H.B.K. Plants glabrous, 1-6 dm. tall: leaf-blades spatulate to oval or ovate, nearly 3-15 cm. long: sepals ovate or triangular-ovate, barely 1 mm. long, acute: corolla white, 3 mm. wide; lobes oblong: capsules 2.5-3 mm. in diameter.—Hammocks, U. keys.—[E. K.]—(*Bah., Cuba.*)—WATER-PIMPERNEL. BROOKWEED.

2. **SAMODIA** Baudo. Caulescent herbs, of low grounds. Leaves alternate: blades entire. Flowers in simple or branched long-peduncled racemes. Calyx perigynous: lobes 5. Corolla white or pink, perigynous, without staminodia: lobes 5. Stamens 5: filaments adnate to above the middle of the relatively long corolla-tube. Ovary and capsules  $\frac{1}{2}$  inferior.

1. *S. ebracteata* (H.B.K.) Baudo. Plant 1-3 dm. tall: leaf-blades spatulate or obovate, 3-10 cm. long, obtuse or apiculate: corolla 6-7 mm. wide; lobes more or less retuse at the apex. [*Samolus ebracteatus* H.B.K.]—Low pine-lands and palm-lands, L. keys.—[E. K.]—(*Bah., Cuba.*)

3. **CENTUNCULUS** L. Annual small herbs of low grounds. Leaves alternate, or some of the lower ones opposite: blades thickish. Corolla incon-



spicuous, not exceeding the calyx with a globular tube and 5 narrow spreading lobes. Filaments united above the middle. Anthers didymous.

1. **C. minimus** L. Stem 2–15 cm. tall: leaf-blades spatulate, oblong, or obovate, 3–8 mm. long, acute or obtuse: flowers sessile or nearly so: calyx-lobes narrowly lanceolate, 2–2.5 mm. long: corolla-lobes lanceolate, acuminate: capsules usually fully 2 mm. in diameter.—Low hammocks, Key West.—FALSE-PIMPERNEL.

### FAMILY 3. THEOPHRASTACEAE. JOEWOOD FAMILY.

Shrubs or trees. Leaves opposite, persistent: blades leathery, entire. Flowers perfect, in racemes, corymbs, or panicles. Calyx of 5 imbricate sepals. Corolla of 5 partially united petals, campanulate or rotate-salverform. Androeium of 5 stamens partially adnate to the corolla-tube, and 5 staminodia. Gynoeium of 5 united carpels. Fruit a drupe-like berry.

1. **JACQUINIA** L. Plants with brittle twigs. Leaf-blades entire, thick and parchment-like when dry. Fruits erect.

1. **J. keyensis** Mez. Shrub, or tree becoming 5 m. tall, the bark pale, the twigs erect: leaf-blades cuneate-spatulate or oblong-obovate, 1–5 cm. long, shining: calyx-lobes 2–3 mm. long, orbicular-ovate: corolla straw-colored; lobes longer than the tube: staminodia oblong, erose: berry subglobose, 8–10 mm. in diameter.—Hammocks and pinelands, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—JOEWOOD.

### FAMILY 4. ARDISIACEAE. MYRSINE FAMILY.

Shrubs or trees. Leaves mostly alternate, ours persistent: blades leathery, entire. Flowers perfect or polygamo-dioecious, in racemes, corymbs, or cymes, sometimes clustered on scaly spurs. Calyx of usually 4–6 sepals. Corolla of usually 4–6 partially united petals, short-salverform or rotate, often streaked or dotted. Androeium of mostly 4–6 stamens, partially adnate to the corolla-tube. Gynoeium of mostly 4–6 united carpels. Fruit a drupe-like berry.

Flowers on scattered spurs: corolla-lobes not reflexed: stigma lobed. 1. **RAPANEA**.  
Flowers in terminal panicles: corolla-lobes reflexed: stigma entire. 2. **ICACOREA**.

1. **RAPANEA** Aubl. Shrubs or small trees. Flowers inconspicuous, clustered on scaly spurs, stout-pedicelled. Corolla white or nearly so: lobes ascending or spreading. Stamens with ascending or spreading anthers. Style very short: stigma lobed.

1. **R. guyanensis** Aubl. Shrub or small tree, with grayish bark: leaves mostly near the ends of the branchlets; blades obovate-oblong or nearly oblong, 4–10 cm. long: flower-clusters scattered along the branchlets: sepals broadly ovate: corolla-lobes oblong, unequal: fruit about 4 mm. in diameter.—Hammocks and pinelands, U. S. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—MYRSINE.

2. **ICACOREA** Aubl. Shrubs or trees. Flowers conspicuous, in panicles, cymes, or clusters, slender-pedicelled. Corolla white or pink: lobes recurved. Stamens with converging anthers. Style elongate: stigma minute, entire.

1. **I. paniculata** (Nutt.) Sudw. Shrub or small tree, with white bark: leaves scattered; blades oblanceolate to elliptic, 4–18 cm. long: panicles terminal:

calyx-lobes ovate to obovate; corolla-lobes oblong; fruit 7-8 mm. in diameter. —Hammocks and pinelands, U. keys, L. keys.—[E. K.]—(*Bah., Cuba.*)—MARLBERRY. CHERRY.

### Order EBENALES.

Shrubs or trees. Leaves alternate, opposite, or whorled: blades simple. Flowers perfect, monoecious, or dioecious. Calyx of 3-12 partially united sepals. Corolla of 3-12 partially united petals. Androecium of as many stamens as there are corolla-lobes, or twice as many or more, sometimes accompanied by staminodia. Gynoecium of 3-several united carpels. Fruit capsular or baccate.

Styles or stigmas distinct: flowers mostly monoecious or dioecious.

Styles and stigmas united: flowers mostly perfect.

Fam. 1. EBENACEAE.

Fam. 2. SAPOTACEAE.

### FAMILY 1. EBENACEAE. EBONY FAMILY.

Shrubs or trees. Leaves mostly alternate: blades entire. Flowers solitary or in cymes. Calyx of 3-7 partially united sepals, persistent, accrescent. Corolla of 3-7 partially united petals, often urecolate. Androecium of 3 or 4 times as many stamens as there are corolla-lobes. Gynoecium of 3-several united carpels. Fruit a berry, or sometimes capsular.

1. **DIOSPYROS** L. Shrubs or trees. Leaves scattered: blades entire. Calyx 3-7-lobed. Stamens with pubescent filaments and anthers opening lengthwise. Berry spheroidal or elongate.

1. **D. virginiana** L. Shrub, or tree becoming 35 m. tall, the bark very rough: leaf-blades ovate, oval, or elliptic, 8-20 cm. long, acute or acuminate: corolla 8-13 mm. long; lobes reniform: berries 3-4 cm. in diameter, astringent when green.—Coastal sand-dunes, U. S. keys.—[E. K.]—PERSIMMON. DATE-PLUM. SIMMON.

### FAMILY 2. SAPOTACEAE. SAPODILLA FAMILY.

Shrubs or trees, with milky sap, sometimes thorny. Leaves mostly alternate: blades entire. Flowers perfect or rarely polygamous, clustered. Calyx of 4-12, slightly united, sepals. Corolla of 4-12 partially united petals, with or without appendages at the sinuses. Androecium of usually as many stamens as there are corolla-lobes, commonly accompanied by staminodia. Gynoecium of several united carpels. Fruit a several-celled berry, or by suppression 1-celled.

Corolla-lobes without dorsal appendages.

Staminodia wanting.

Staminodia present.

Ovary 10-12-celled.

Ovary 2-5-celled.

Corolla-lobes entire.

Seeds without endosperm.

Seeds with endosperm.

Corolla-lobes with a large middle lobe and 2 smaller lateral lobes.

Ovary glabrous: endosperm copious.

Ovary pubescent: endosperm wanting or scant.

Corolla-lobes with dorsal appendages.

1. CHRYSOPHYLLUM.

2. SAPOTA.

3. SIDEROXYLON.

4. LUCUMA.

5. DIPHOLIS.

6. BUMELIA.

7. MINUSOFS.

1. **CHRYSOPHYLLUM** L. Shrubs or trees. Leaf-blades commonly lustrous-pubescent beneath. Calyx-lobes mostly 5. Corolla, like the calyx,

often pubescent: lobes mostly 5, entire. Anthers emarginate and apiculate. Style wanting. Stigma lobed.

1. *C. olivaeforme* L. Evergreen tree becoming 10 m. tall, the twigs closely pubescent: leaf-blades leathery, oblong, elliptic, or oval, 3-10 cm. long, lustrous-pubescent beneath: calyx-lobes suborbicular, 1.5 mm. long: corolla white, about 5 mm. wide; lobes suborbicular: berries oval, about 2 cm. long, dark-purple.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—SATIN-LEAF.

2. *SAPOTA* Mill. Trees. Leaf-blades glabrous. Calyx-lobes 6, or rarely 5, pubescent. Corolla glabrous: lobes 6, or rarely 5, toothed. Anthers blunt. Staminodia nearly as long as the corolla-lobes. Style elongate: stigma minute. Berry spheroidal, rough.

1. *S. Achras* Mill. Tree with rusty-tomentose twigs: leaves and flowers approximately at the ends of the branchlets; blades oblong to elliptic, varying to broadest above or below the middle, 5-12 cm. long: pedicels rusty-tomentose, about as long as the petioles: calyx-lobes 8-10 mm. long: corolla 8-10 mm. long; lobes about  $\frac{1}{2}$  as long as the tube: berries 4-8 cm. in diameter.—Hammocks and cultivated grounds, U. keys, L. keys, Nat of W. I.—[E. K.]—(*Bah., Cuba, Ant.*)—SAPODILLA. DILLY.

3. *SIDEROXYLON* [Dill.] L. Shrubs or trees. Leaf-blades not lustrous-pubescent. Calyx-lobes 5-6. Corolla glabrous: lobes 5-6, entire. Anthers notched. Staminodia much shorter than the corolla-lobes. Style columnar: stigma truncate.

1. *S. foetidissimum* Jacq. Evergreen tree becoming 25 m. tall: leaf-blades thin-leathery, oblong to oval or rarely ovate, 4-15 cm. long, glabrous at maturity: calyx-lobes suborbicular, about 2 mm. long: corolla light-yellow, 6-7 mm. wide; lobes oblong to ovate-oblong: staminodia lanceolate: drupes oval, 2-2.5 cm. long, yellow.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—MASTIC. WILD-OLIVE.

4. *LUCUMA* Juss. Trees. Leaf-blades more or less elongate, usually broadened upward. Calyx-lobes 5, in 1 or 2 series. Corolla white or pale: lobes 5, entire or nearly so. Staminodia slender, shorter than the corolla-lobes. Ovary 5-celled, or sometimes 4-6-celled: style columnar: stigma slightly dilated. Berry globular, or slightly elongate, smooth.

1. *L. nervosa* A. DC. Leaf-blades oblong to elliptic, 10-20 cm. long, acute or acutish: calyx-lobes 5, the inner ones rounded at the apex: corolla 7-9 mm. long; lobes ovate: staminodia subulate: fruits globose-ovoid, 5-7 cm. long, smooth, usually 2- or 3-seeded.—Hammocks, U. keys. Nat. of n. S. Am.—(*Cuba.*)—EGG-FRUIT.

5. *DIPHOLIS* A. DC. Shrubs or small trees. Leaf-blades mostly glabrous. Calyx-lobes 5, pubescent. Corolla-lobes 5, each 3-lobed, shorter than the tube. Staminodia petaloid. Endosperm copious.

1. *D. salicifolia* (L.) A. DC. Evergreen tree becoming 16 m. tall: leaf-blades elliptic to elliptic-ob lanceolate, 5-12 cm. long: calyx-lobes ovate to oblong, 1.5 mm. long: corolla 4 mm. wide; lobes oblong or oval: staminodia ovate to ovate-lanceolate, lacinate-toothed: berries oval or subglobose, about 8 mm. in diameter, black.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—BUSTIC. CASSADA.

6. **BUMELIA** Sw. Shrubs or trees. Leaf-blades mostly pubescent beneath. Calyx-lobes 5. Corolla-lobes 5, each 3-lobed, the middle lobe suborbicular, longer than the tube. Staminodia petaloid. Endosperm wanting or very scant.—BUCKTHORN.

1. **B. angustifolia** Nutt.<sup>1</sup> Evergreen shrub, or tree becoming 8 m. tall, the twigs glabrous: leaves relatively few and not crowded: blades oblanceolate to oblanceolate-spatulate, 1-4 cm. long, smooth and glabrous: calyx-lobes ovate, 2 mm. long: corolla about 4 mm. wide; lateral divisions of the lobes narrowly lanceolate, irregularly toothed: staminodia 2.5 mm. long, lacerate: berries 17-20 mm. long.—HAMMOCKS, U. keys, L. keys.—SAFFRON-PLUM.

7. **MIMUSOPS** L. Shrubs or trees. Leaf-blades leathery, finely many-veined. Calyx-lobes 6 or 8, the outer ones valvate. Corolla with dorsal appendages; lobes 6 or 8, each with 2 very small lateral lobes. Staminodia petaloid.

1. **M. emarginata** (L.) Britton. Evergreen tree, becoming 10 m. tall: leaves clustered at the ends of the branchlets: blades oblong, 3-10 cm. long: calyx like the pedicels, red-tomentose; lobes lanceolate to ovate-lanceolate: corolla light yellow, 1.5-2 cm. wide: staminodia triangular: berries spheroidal, nearly 3 cm. thick. [*M. parvifolia* (Nutt.) Radlk.]—HAMMOCKS, L. keys.—(Bah.)—WILD-BILLY.

### Order OLEALES.

Shrubs, trees, undershrubs, or herbs. Leaves opposite, or rarely alternate or whorled: blades simple or pinnately compound. Flowers perfect, polygamous, or dioecious. Calyx of 4, or more, partially united sepals, or wanting. Corolla of 2-6, distinct or partially united, petals, or wanting. Androecium of 2-4 stamens partially adnate to the corolla when it is present. Gynoecium of 2 united carpels, the ovary superior. Fruit a capsule, a samara, or a berry, usually 1-celled.

### FAMILY 1. OLEACEAE. OLIVE FAMILY.

Woody or partially woody plants with erect or climbing stems. Leaves predominatingly opposite: blades simple and entire or toothed, or pinnately compound.

1. **FORESTIERA** Poir. Shrubs or trees. Leaves opposite: blades simple. Flowers mostly polygamo-dioecious, in lateral clusters. Calyx minute, 4-6-lobed, or obsolete. Corolla wanting, or rarely of 1-2 deciduous petals. Stamens 2-4. Stigma 2-lobed. Drupe oblong to globular.

1. **F. porulosa** (Michx.) Poir. Shrub 1-3 m. tall, or small tree, the twigs glabrous or nearly so: leaf-blades 1.5-5 cm. long, oblong-lanceolate to spatulate: bracts oval or suborbicular, about 1.5 mm. long: drupes oblong, 7-8 mm. long.—HAMMOCKS, U. S. keys.—FLORIDA-PRIVET.

<sup>1</sup> An apparent form of *B. angustifolia* growing in the Bahamas and the Lower Keys and Lower Sand Keys has been described as follows:

**B. Eggersii** Pierre. Evergreen shrub, generally smaller in all parts than *B. angustifolia*: leaves relatively numerous and crowded; blades narrowly spatulate, mainly 0.5-2.5 cm. long, smooth and glabrous: berries 11-15 mm. long.

## Order GENTIANIALES.

Herbs, shrubs, or trees, sometimes aquatic or humus plants, or vines. Leaves mainly opposite: blades simple. Flowers mostly perfect, solitary or in cymes. Calyx of 5 partially united sepals, or fewer. Corolla of 5 partially united petals, or fewer. Androecium of as many stamens as there are corolla-lobes: filaments often partially adnate to the corolla-tube. Gynoecium of 2 more or less united carpels. Fruit capsular, baccate, or drupaceous.

Ovary 2-celled: leaves stipulate or the bases connected by stipular lines.

Ovary 1-celled: leaves not stipulate.

FRAM. 1. SPIGELIACEAE.  
FRAM. 2. GENTIANACEAE.

## FAMILY 1. SPIGELIACEAE. LOGANIA FAMILY.

Herbs, vines, or woody plants. Leaves typically opposite. Flowers in open or compact clusters. Calyx of 4 or 5 partially united sepals. Corolla of 4 or 5 partially united petals. Androecium of 4 or 5 stamens. Gynoecium of 2 united carpels, or rarely more. Ovary 2-celled or rarely 4-celled. Fruit capsular and 2-valved, or baccate or drupaceous.

Corolla tubular-funnelform, much exceeding the calyx: anthers narrow, much shorter than the filaments. 1. SPIGELIA.

Corolla urceolate or campanulate, as long as the calyx or slightly longer: anthers globose-didymous, as long as the filaments or longer.

Corolla urceolate: capsule prominently 2-lobed.

Corolla campanulate: capsule ovoid-globose.

2. CYNOCOTONUM.  
3. POLYPREMUM.

1. **SPIGELIA** L. Erect herbs. Flowers in solitary or clustered spikes or spike-like racemes. Calyx-lobes narrow. Corolla colored, rarely pale, tubular-funnelform, scarcely if at all plicate in the bud. Filaments adnate to above the middle of the corolla-tube or to near the top.

1. **S. Anthelmia** L. Stem 1-4 dm. tall: leaf-blades lanceolate, 3-12 cm. long: inflorescence subtended by a whorl of large bracts: calyx-lobes 1.5-2 mm. long: corolla 6-10 mm. long; lobes ovate to deltoid: capsules 5-6 mm. wide, tuberculate.—Hammocks and cultivated grounds, Elliott's Key.—(*Bah., Cuba, Ant.*)—WEST-INDIAN PINK-ROOT.

2. **CYNOCOTONUM** J. F. Gmel. Annual (ours) erect herbs. Flowers in terminal cymes, secund. Calyx usually 5-lobed. Corolla white or pale, urceolate, somewhat longer than the calyx. Filaments almost completely adnate to the corolla-tube. Styles united by their tips in anthesis, ultimately distinct. Capsules miter-shaped, the 2 horns curved.—MITERWORT.

Leaf-blades narrowed into petiole-like bases: inflorescence lax. 1. *C. Mitreola*.  
Leaf-blades sessile: inflorescence dense. 2. *C. sessilifolium*.

1. **C. Mitreola** (L.) Britton. Stem 1-7 dm. tall: leaf-blades thin, oblong, elliptic, lanceolate, or ovate, or sometimes narrower, 1.5-8 cm. long, acute or acuminate: corolla-lobes ovate to oblong-lanceolate: capsules 2-2.5 mm. long.—Low pinelands and lime-sinks, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

2. **C. sessilifolium** (Walt.) J. F. Gmel. Stem 1-5 dm. tall: leaf-blades thick, ovate to orbicular, 1-5 cm. long, obtuse or apiculate: corolla-lobes ovate, mainly shorter than the tube: capsules about 4 mm. long.—Pinelands, L. keys.—[E. K.]

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3. **POLYPREMUM** L. Annual diffuse herbs. Flowers solitary in the forks of the branches and in the leaf-axils. Calyx-lobes 4 or 5, narrow. Corolla white, campanulate, shorter than the calyx. Filaments adnate to the corolla-tube for about  $\frac{1}{2}$  their length. Styles very short, permanently united. Capsules obovoid or subglobose.

1. **P. procumbens** L. Stem and branches 1-3 dm. long: leaf-blades narrowly linear to subulate, scabrous-margined: calyx-lobes narrowly lanceolate, about 3 mm. long: corolla-lobes suborbicular, slightly shorter than the tube: capsules about 2 mm. long.—Pinelands and waste places, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

## FAMILY 2. GENTIANACEAE. GENTIAN FAMILY.

Annual or perennial caulescent herbs, or rarely shrubs. Leaves typically opposite: blades entire, sometimes connate. Flowers perfect, solitary or variously clustered. Calyx of 2, 4 or 5, or more, partially united sepals, persistent. Corolla of 4 or 5 or more, partially united petals, varying from rotate to tubular. Androecium of as many stamens as there are corolla-lobes, the filaments partially adnate to the corolla-tube. Gynoecium of two united carpels. Fruit a capsule.

Corolla-lobes convolute in the bud: leafy plants, not saprophytic: stigmas distinct. Corolla campanulate-funnelform: stigmas broad, capsule oblong to oval.

Corolla rotate: stigmas narrow: capsule globose to ovoid.  
Corolla-lobes imbricate in the bud: nearly leafless plants, saprophytic: stigmas united.

1. EUSTOMA.

2. SABBATIA.

3. LEIPHAIMOS.

1. **EUSTOMA** Salisb. Annual relatively large herbs. Flowers solitary or in open panicles. Calyx-lobes 5 or 6, narrow. Corolla white, blue, or purple, campanulate-funnelform: lobes 5 or 6, usually erose-denticulate, longer than the tube.

1. **E. exaltatum** (L.) Griseb. Stem 1-9 dm. tall: blades of the upper leaves oblong to oblong-lanceolate, 1.5-7 cm. long: calyx-lobes 10-12 mm. long: corolla mainly blue; lobes oblong or oval, 17-20 mm. long: capsules 2-2.5 cm. long.—Pinelands and sandy places, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

2. **SABBATIA** L. Annual or biennial relatively slender herbs. Flowers solitary or in cymes. Calyx-lobes 4-12, narrow. Corolla white, or of the pale tints, often with a distinct eye, rotate: lobes entire, longer than the tube.—MARSH-PINK.

1. **S. campanulata** (L.) Torr. Stem 1-4 dm. tall: blades of the upper leaves narrow, but typically broader than the diameter of the stem or branches: calyx with filiform or nearly filiform lobes, typically about as long as the corolla: corolla deep-rose or magenta, with a yellow eye; lobes oblong to spatulate-oblong: capsules 6-8 mm. long.—Pinelands and sandy places, L. keys.—[E. K.]—(*Bah., Cuba.*)

3. **LEIPHAIMOS** Schlecht. & Cham. Annual or perennial humus plants. Leaves mere scales. Flowers solitary or in cymes. Calyx-lobes 4 or 5, narrow, commonly about as long as the tube. Corolla white or variously colored, salverform: lobes 4 or 5, much shorter than the tube.

1. **L. parasitica** Schlecht. & Cham. Plant pale, 1-4 dm. tall: leaves (scales) opposite, 3-5 mm. long: calyx-lobes lanceolate, acute: corolla white or pink, 6-8 mm. long, about twice as long as the calyx; lobes triangular to lanceolate:

capsules 5-6 mm. long.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

### Order ASCLEPIADALES.

Herbs, shrubs, or trees, commonly with a milky juice. Leaves alternate or opposite: blades entire. Inflorescence cymose, sometimes umbellate. Calyx of usually 5, partially united, sepals. Corolla of 5, partially united, petals. Androeium of mostly 5 distinct or monadelphous stamens, partially adnate to the corolla in *Asclepiadaceae* and accompanied by a 5-lobed crown. Pollen granular or in waxy masses. Gynoeium of usually 2 carpels, sometimes united only at the apex. Stigma terminal. Fruit a pair of follicles, or drupaceous.

Styles united: stamens distinct: pollen loosely granular. Fam. 1. APOCYNACEAE.  
 Styles distinct: stamens usually monadelphous: pollen  
 united into waxy masses or the grains in groups of 4. Fam. 2. ASCLEPIADACEAE.

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### FAMILY 1. APOCYNACEAE. DOGBANE FAMILY.

Perennial herbaceous or woody plants, with mostly dichotomous, cymose inflorescence. Androeium of mostly 5 stamens, with the anthers converging around the stigma or slightly adhering to it, not accompanied by a crown. Gynoeium of 2 carpels, the styles and stigmas at least united; two carpels usually maturing.

Anthers unappendaged at the base, not connected with the stigma: corolla-lobes sinistrorsely convolute.

Fruit drupaceous: shrubs or trees.

Corolla salverform, relatively small; lobes equilateral, shorter than the tube.

Corolla funnelform, relatively large; lobes inequilateral, longer than the tube.

Fruit a pair of follicles: herbs sometimes partially shrubby.

Anthers appendaged at the base, converging around the stigma and partially adherent to it: corolla mostly dextrorsely convolute.

Corolla funnelform, the throat widened upward.

Calyx-lobes relatively long and narrow: scale-like glands borne at the base of the calyx within.

Calyx-lobes relatively broad and short: scale-like glands wanting.

Corolla salverform, the throat narrowed upward.

1. VALLESIA.

2. CERBERA.

3. AMMOCALLIS.

4. URECHITES.

5. RHABDADENIA.

6. ECHITES.

1. **VALLESIA** R. & P. Shrubs. Leaves alternate: blades relatively broad. Calyx-lobes short. Corolla salverform, the throat contracted at the mouth. Drupe narrow. Seeds clavate.

1. **V. glabra** Cav. Shrub: leaves remote; blades elliptic to oblong-lanceolate, 4-7 cm. long: calyx-lobes deltoid to ovate-deltoid, less than 1 cm. long: corolla white; tube 5-6 mm. long; lobes linear-oblong, 3-4 mm. long: drupe 10-14 mm. long.—Hammocks, L. keys.—(*Bah., Cuba, Ant.*)

2. **CERBERA** L. Shrubs or trees. Leaves alternate: blades relatively narrow. Calyx-lobes long. Corolla funnelform, the throat not constricted at the mouth. Drupe broad. Seeds angular.

1. **C. Thevetia** L. Shrub: leaves approximate; blades narrowly linear, 8-16 cm. long: calyx-lobes lanceolate, 5-7 mm. long: corolla saffron-colored: tube 2-2.5 cm. long; lobes very broad, 3-4 cm. long: drupe depressed, 3-4 cm. broad.—

Pinelands and waste places, L. keys. Nat. of Trop. Am.—[E. K.]—(*Bah., Cuba, Ant.*)—TRUMPET-FLOWER. YELLOW-OLEANDER.

3. **AMMOCALLIS** Small. Erect herbs. Leaves opposite. Corolla-tube with a contracted mouth. Follicles narrow.

1. **A. rosea** (L.) Small. Stems 2-7 dm. tall: leaf-blades oblong to oblong-cuneate, 4-8 cm. long: calyx-lobes linear-subulate, 3-4 mm. long: corolla white, pink, or blue, with an eye; tube 27-34 mm. long: lobes abruptly pointed: follicles 2-3 cm. long.—Pinelands, hammocks and waste places, U. keys, L. keys. Nat. of the tropics.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—PERIWINKLE.

300 4. **URECHITES** Muell. Arg. Vines. Leaves opposite. Calyx-lobes relatively long and narrow. Corolla-tube abruptly dilated into the campanulate throat.

1. **U. lutea** (L.) Britton. Stems 3-30 dm. long, reclining or twining: leaf-blades oval, ovate, or suborbicular, 2.5-5 cm. long: calyx-lobes lanceolate, 8-11 mm. long: corolla yellow, the campanulate throat over 2 cm. long: anthers with linear-filiform appendages at the apex: follicles 12-15 cm. long. [*U. Andrewsii* (Chapm.) Small.]—Pinelands.—F. K. (*Bah., Cuba, Ant.*)

5. **RHABDADENIA** Muell. Arg. Vines, sometimes nearly erect. Leaves opposite. Calyx-lobes relatively broad and short. Corolla-tube gradually dilated into the funnelform throat.

Corolla yellow; limb 2.5-3 cm. wide: erect herb, the branches pubescent.

Corolla white; limb 4.5-5 cm. wide: twining vine, the branches  
glabrous. 1. *R. corallicola*.

2. *R. biflora*.

1. **R. corallicola** Small. Stems 3-11 dm. long: leaf-blades oblong or nearly so, 1-3 cm. long, more or less revolute: calyx-lobes deltoid-ovate, 2-2.5 mm. long: corolla 2.5-3 cm. long; lobes 1-1.5 cm. wide: follicles 8-11 cm. long.—Pinelands, L. keys.—[E. K.]—Fragmentary specimens apparently of a related species, *R. Sagraei*, of the Bahamas and Cuba, were collected on "Pine Key" many years ago by Dr. Blodgett. It differs from *R. corallicola* in the twining stem, the broader calyx-lobes, the shorter free portions of the filaments, and the stout-beaked seeds.

2. **R. biflora** (Jacq.) Muell. Arg. Stems greatly elongate: leaf-blades oblong or oblong-lanceolate, 4-9 cm. long, apiculate: calyx-lobes oblong or nearly so, 4-5 mm. long: corolla 5-6 cm. long; lobes 2.5-3 cm. wide: follicles 12-15 cm. long.—Coastal hammocks, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

6. **ECHITES** P. Br. Vines. Leaves opposite. Flowers relatively large. Calyx with glands within. Corolla salverform, the throat narrowed to the mouth.

1. **E. Echites** (L.) Britton. Stems widely twining: leaf-blades ovate to oval, 4-9 cm. long: calyx-lobes triangular, 2.5-3.5 mm. long: corolla white or greenish-white; tube, 5-6 cm. long; lobes 1.5-2.5 cm. long: follicles 15-20 cm. long.—Pinelands, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

## FAMILY 2. ASCLEPIADACEAE. MILKWEED FAMILY.

Perennial herbaceous or woody plants, with usually umbel-like cymes. Androecium of usually 5 stamens, with the anthers more adherent to the stigma than in *Apocynaceae*, the filament-appendages forming a crown. Gynoecium of 2 carpels with the stigmas united; only one carpel usually maturing.

Crown double, the outer a shallow ring, the inner with 5 fleshy hood-like scales.

1. *PHILIBERTELLA*.

Crown single.

Erect, ascending or spreading herbs.

Corolla-lobes reflexed during anthesis: hoods of the crown crestless or each with a horn-like process.

2. *ASCLEPIAS*.

Corolla-lobes erect-spreading during anthesis: hoods of the crown pendulous or saccate at the base, curved upward, obtuse, crested within, at least in the upper part.

3. *ASCLEPIODORA*.

Twining vines.

Petals slightly united at the base: column short.

Corolla-lobes glabrous within: crown-lobes broad.

Stigma flat: crown-lobes not notched.

4. *AMPHISTELMA*.

Stigma conic: crown-lobes notched at the apex.

5. *LYONIA*.

Corolla-lobes pubescent within: crown-lobes narrow.

6. *METASTELMA*.

Petals united to about the middle: column elongate.

7. *EPICION*.

303 1. *PHILIBERTELLA* Vail. Vines with narrow or broad leaf-blades.

Calyx 5-lobed. Corolla rotate: lobes broad, glabrous within. Anthers coherent.

1. *P. clausa* (Jacq.) Vail. Leaf-blades 3-8 cm. long, ovate-oblong to oblong-lanceolate, rounded or subcordate at the base: peduncles twice as long as the leaves or more: calyx-lobes oblong-lanceolate: corolla white; lobes oblong to ovate, 4-5 mm. long: follicles 5-7 cm. long: seeds about 3 mm. long.—Coastal hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

2. *ASCLEPIAS* [Tourn.] L. Erect or spreading herbs, with narrow or broad leaf-blades. Calyx-lobes 5. Corolla rotate: lobes reflexed. Crown-hoods approximate to the anthers, or nearly so, not adnate to the anther-column, the horn mainly adnate only at the base of the hood. Anther-wings salient at the base. Pollinia longer than the caudicles.—MILKWEED.

1. *A. curassavica* L. Stems 3-9 dm. tall, sometimes minutely pubescent above: blades oblong to oblong-lanceolate, 5-12 cm. long or more, glabrous or nearly so: hoods ovate, 4 mm. long, much exceeding the androecium; horn stout, exceeding the hood: column about 1.5 mm. long: follicles 3-10 cm. long: seeds 6 mm. long.—Hammocks, waste places, and cultivated grounds, L. keys.—(*Bah., Cuba, Ant.*)

3. *ASCLEPIADORA* A. Gray. Spreading herbs with alternate leaves. Calyx-lobes 5, spreading. Corolla rotate: lobes spreading. Crown-hoods involute and hooded at the apex, with an internal ridge above the middle. Anthers equalling the gynostegium: wings rounded at the base. Pollinia with caudicles nearly as long as the narrow bodies.

1. *A. viridis* (Walt.) A. Gray. Stem 2-6 dm. long, stout: leaf-blades oblong to lanceolate, 6-10 cm. long, rather thin: calyx-lobes about 4 mm. long, ciliate: corolla-lobes greenish, 10-11 mm. long: hoods about 4.5 mm. long, purplish or violet: anther-wings 2.5 mm. long: follicles 6-11 cm. long.—Pinelands. L. keys.—[E. K.]

4. *AMPHISTELMA* Griseb. Slender vine with narrow leaf-blades. Calyx-lobes longer than the corolla-tube. Corolla rotate-campanulate: lobes glabrous within. Crown adnate to the corolla: lobes very broad, surpassed by the anthers. Stigma flat.

1. *A. scoparia* (Nutt.) Small. Diffuse vine: leaf-blades narrowly linear, 2-5 cm. long: calyx-lobes about 1 mm. long, deltoid: corolla-lobes greenish, 1.5-2 mm. long: crown-lobes about 0.5 mm. long: follicles 3.5-4.5 mm. long. Hammocks, U. keys, L. keys.—[E. K.]



5. **LYONIA** Ell. Slender vines with narrow leaf-blades. Calyx-lobes longer than the corolla-tube. Corolla rotate-campanulate: lobes spreading at the tip, glabrous within. Crown adnate to the short column: lobes naked at the apex, longer than the gynostegium. Stigma conic.

1. **L. palustris** (Pursh) Small. Leaf-blades linear, 2-7 cm. long, acute, pendant: calyx-lobes lanceolate, about 2.5 mm. long: corolla-lobes purplish or greenish-white, 3-4 mm. long: crown-lobes 1.5-2 mm. long, retuse or emarginate at the apex: anther-wings about 1 mm. long: follicles 4.5-5.5 cm. long.—Hammocks. U. S. keys, U. keys, L. keys.—[E. K.]—(*Bah., Cuba.*)

6. **METASTELMA** R. Br. Slender vines with narrow leaf-blades. Calyx-lobes longer than the corolla-tube. Corolla rotate-campanulate: lobes pubescent within. Crown adnate to the very short column: lobes slender, curved over the anthers. Stigma flat.

1. **M. Blodgettii** A. Gray. Leaf-blades linear or linear-lanceolate, 8-27 mm. long: corolla whitish; lobes penicillate-bearded near the apex within: crown adnate to the base of the column: follicles 4-5 cm. long.—Hammocks, U. keys, L. keys.—[E. K.]

7. **EPICION** Small. Slender vines with relatively broad leaf-blades. Calyx-lobes shorter than the corolla-tube. Corolla campanulate: lobes pubescent within. Crown adnate to the elongate column: lobes narrow, not longer than the anthers. Stigma flat or depressed.

1. **E. bahamense** (Griseb.) Small. Leaf-blades oblong to oval, 1.5-2.5 cm. long, slender-petioled: calyx-lobes 1-1.5 mm. long: corolla white, 4-4.5 mm. long; lobes obtuse: crown-lobes 1-5 mm. long: follicles 5-6.5 cm. long.—[*M. bahamense* Griseb.]—Hammocks and pinelands, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba.*)

### Order POLEMONIALES.

Herbs, or sometimes shrubs or trees, the plants of some groups parasitic. Leaves with dilated blades or scale-like. Flowers mainly perfect. Calyx of partly united sepals. Corolla of partly united petals, regular or irregular. Androecium of as many stamens as there are corolla-lobes, or fewer, sometimes partially represented by staminodia, or partially obsolete. Gynoecium of 2 distinct or several united carpels. Ovary superior. Fruit a capsule, a berry, or a dupe, or a group of nutlets or utricle-like.

#### Stamens 5.

Gynoecium of 2 distinct carpels.

Gynoecium of 2 or more partially or wholly united carpels.

Fruit capsular or baccate: ovary not 4-lobed.

Styles or stigmas distinct.

Ovary 1-2-celled, or rarely 4- or 5-celled: stigmas 2.

Ovary 3-celled: stigmas 3.

Ovules, and seeds, few.

Ovules, and seeds, numerous.

Styles or stigmas wholly united.

Median axis of the gynoecium in the same axis as the stem: seeds mostly pitted.

Median axis of the gynoecium not in the axis of the stem: seeds mostly tuberculate.

Fruit drupaceous, or of 2 or 4 nutlets.

Fam. 1. DICHONDRACEAE.

Fam. 2. CONVULVACEAE.

Fam. 2. CONVULVACEAE.

Fam. 3. HYDROLEACEAE.

Fam. 4. SOLANACEAE.

Fam. 10. RHINANTHACEAE.



- Style or stigmas not furnished with a glandular ring.  
 Style or stigmas furnished with a glandular ring.  
 Stamens 4 and didynamous, or 1 or 2.  
 Carpels ripening into a group of 4 nutlets, an achene or a drupe.  
 Style apical on the lobeless ovary.  
 Ovules erect, or laterally attached: gynoeceum ripening into a dry or fleshy fruit with 2-8 nutlets, the seeds with a testa.  
 Ovules pendulous from the top of a central columella: gynoeceum ripening into a fleshy-capsular fruit with a solitary seed which is destitute of a testa.  
 Style arising between the 4 lobes of the ovary.  
 Carpels ripening into a capsule.  
 Placentae of the ovary axile.  
 Ovary 2-celled, or rarely 3-5-celled.  
 Corolla-lobes imbricated: capsules not elastically dehiscent.  
 Corolla-lobes convolute: capsules elastically dehiscent.  
 Ovary 1-celled.  
 Placentae of the ovary parietal.
- Fam. 5. EHRETIACEAE.  
 Fam. 6. HELIOTROPIACEAE.  
 Fam. 7. VERBENACEAE.  
 Fam. 8. AVICENNIACEAE.  
 Fam. 9. LAMIACEAE.  
 Fam. 10. RHINANTHACEAE.  
 Fam. 11. ACANTHACEAE.  
 Fam. 12. PINGUICULACEAE.  
 Fam. 13. BIGNONIACEAE.

FAMILY 1. **DICHONDRACEAE.** DICHONDRA FAMILY.

Annual or perennial creeping herbs. Leaves alternate: blades broad, entire, long-petioled. Flowers axillary, solitary. Calyx of 5 slightly united sepals. Corolla rotate to campanulate, 5-lobed. Androeceum of 5 stamens shorter than the corolla. Gynoeceum of 2 distinct carpels. Styles basal. Capsules utricle-like, 2 together.

1. **DICHONDRA** Forst. Stems much-branched, often densely matted. Flowers erect.

477 1. **D. carolinensis** Michx. Plant inconspicuously pubescent: leaf-blades reniform to suborbicular, 5-20 mm. wide, deeply cordate: calyx-lobes 2-3 mm. long: corolla-lobes obtuse.—Hammocks and pinelands, L. keys.—[E. K.]—(Ber., Bah.)

89 FAMILY 2. **CONVOLVULACEAE.** MORNING-GLORY FAMILY.

Annual or perennial herbs, or vines, or rarely shrubs or trees. Leaves alternate, without stipules: blades various. Flowers perfect, regular, solitary or cymose. Calyx of 5, more or less united sepals, in one or two series. Corolla convolute in aestivation, its limb lobed or entire. Androeceum of 5 stamens, partially adnate to the corolla-tube, alternate with the lobes. Gynoeceum of 2 united carpels. Ovary 2-4-celled (rarely 5-celled, or 1-celled by the breaking down of the septum). Seeds 1 or 2 in each cavity, often pubescent.

- Styles distinct: stigmas 4.  
 Styles united up to the stigma.  
 Stigmas ovoid or subglobose.  
 Stamens and style included: corolla funnelliform.  
 Calyx herbaceous; lobes elongate, usually pilose: ovary usually 3-celled.  
 Calyx leathery or membranous; lobes short: ovary 2- or 4-celled.  
 Stamens and style exserted: corolla salverform.  
 Stigmas flattened.
1. EVOLVULUS.  
 2. PHARBITIS.  
 3. IPOMOEA.  
 4. CALONYCTION.  
 5. JACQUEMONTIA.

3. **1. EVOLVULUS** L. Erect or diffuse herbs or partially woody plants. Leaf-blades entire. Flowers solitary and axillary or in terminal racemes or panicles. Calyx small; lobes nearly equal. Corolla white, pink, or blue, rotate or rotate-funnelform: limb 5-angled or 5-lobed. Capsule subglobose, 2-4-valved.

Leaf-blades broad, obtuse, abruptly pointed or acute: stem and branches pubescent.

Perennial: peduncles very short: leaves approximate or crowded. 1. *E. Wrightii*.

Annual or biennial: peduncles mostly as long as the leaves or longer: leaves distant.

Branches villous: calyx over  $\frac{1}{2}$  as long as the corolla.

2. *E. alsinoides*.

Branches silky: calyx less than  $\frac{1}{2}$  as long as the corolla.

3. *E. glaber*.

Leaf-blades narrow, acuminate: stem and branches glabrous.

4. *E. linifolius*.

1. **E. Wrightii** House. Stem and branches tufted, mostly less than 1 dm. long, villous-hirsute with silvery hairs: leaf-blades suborbicular to ovate, 3-8 mm. long, acute or abruptly pointed: calyx-lobes linear-lanceolate, 4-5 mm. long, acuminate: corolla blue, or white, 7-9 mm. broad.—Pinelands and open sandy places, L. keys.—(*Cuba*.)

2. **E. alsinoides** L. Stem and branches diffuse or prostrate, 1-6 dm. long, slender: leaf-blades oblong-oval to oblong-lanceolate, 6-2.5 mm. long, acute or acutish, permanently pubescent: calyx-lobes lanceolate, 2.5-3.5 mm. long, acute: corolla blue or white, 8-12 mm. broad: capsules 3-4 mm. in diameter.—Hammocks, L. keys.—(*Bah.*, *Cuba*, *Ant.*)

3. **E. glaber** Spreng. Stem and branches diffuse, prostrate, sometimes creeping, silky: leaf-blades oblong, oval, or obovate, mostly 1-1.5 cm. long, mucronate, glabrous at maturity: calyx-lobes oblong, oblong-lanceolate, or oblong-ovate, 3-4.5 mm. long, acute or slightly acuminate: corolla blue, pink, or white, about 1 cm. broad: capsules ovoid, 2.5-3.5 mm. in diameter.—Hammocks and open sandy places, L. keys.—(*Bah.*, *Cuba*, *Ant.*)

4. **E. linifolius** L. Stem and branches wiry-filiform, glabrous, diffuse: leaf-blades linear to linear-subulate, 0.5-2 cm. long, acuminate, glabrous: calyx-lobes linear-lanceolate, 4-5 mm. long, acuminate: corolla pale-blue or white, nearly 1 cm. broad: capsules subglobose, 3-4 mm. in diameter.—Pinelands, Big Pine Key.—(*Bah.*, *Ant.*)

2. **PHARBITIS** Choisy. Climbing or trailing vines. Leaf-blades entire, lobed, or angled. Calyx-lobes equal or unequal, herbaceous, each with a pubescent base and a narrow tip. Corolla white, blue, or purple, funnelform. Seeds glabrous.—MORNING-GLORY.

1. **P. cathartica** (Poir.) Choisy. Perennial, minutely strigillose or glabrate: leaf-blades broadly ovate, 5-9 cm. long, entire or 3-lobed: sepals ovate-lanceolate, 1-2 cm. long, acuminate: corolla-limb pink-purple to white, 6-8 cm. wide.—Hammocks and thickets, U. S. keys, U. keys, L. keys, L. S. keys.—[*E. K.*]—(*Ber.*, *Bah.*, *Cuba*, *Ant.*)

3. **IPOMOEA** L. Climbing or trailing vines or rarely upright plants. Leaf-blades entire, angled, or divided. Flowers solitary on axillary peduncles, or in cymes. Calyx-lobes coriaceous or membranous, or rarely fleshy. Corolla funnelform, the limb usually spreading. Capsule mostly septifragally 2- or 4-valved. Seeds often pubescent.—MORNING-GLORY.

Stem and branches creeping.

Corolla-limb white: leaf-blades several-lobed.

1. *I. stolonifera*.

Corolla-limb purple: leaf-blades not lobed, notched at the apex.

2. *I. Pes-Caprae*.

Stem and branches twining or trailing.

Leaf-blades sagittate or hastate: inner sepals less than 1 cm. long.

Sepals equal, about 6 mm. long: corolla-limb less than 3 cm. wide.

3. *I. tenuissima*.

Sepals unequal, 7-9 mm. long: corolla-limb over 5 cm. wide.

4. *I. sagittata*.

Leaf-blades ovate, entire or angulately lobed, or hastately 3-lobed.

Calyx glabrous; lobes 10-14 mm. long: plants perennial.

5. *I. Batatas*.

Calyx pubescent; lobes 8-10 mm. long: plants annual.

6. *I. triloba*.

1. *I. stolonifera* (Cyrill.) Poir. Leaf-blades 2-5 cm. long, the early ones ovate to oblong, the later ones pandurate or more deeply lobed, mostly truncate or cordate at the base: sepals oblong to oval, 1-1.5 cm. long, mucronate or acuminate: capsules subglobose, 1.5 cm. long.—Coastal sand-dunes and beaches, U. S. keys.—(*Bah., Cuba, Ant.*)

2. *I. Pes-Caprae* (L.) Sweet. Leaf-blades 6-10 cm. long and as broad, rounded or cordate at the base: sepals oval or suborbicular, obtuse: corolla 4-5 cm. long: capsules globose-ovoid, 1.5 cm. long.—Coastal sand-dunes and shores, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—BEACH MORNING-GLORY.

3. *I. tenuissima* Choisy. Stems twining: leaf-blades lanceolate or linear-lanceolate, 2-5 cm. long, obtuse and mucronulate: sepals ovate-lanceolate, obtuse, ciliate: corolla purple, 3-4 cm. long: capsules globose.—Open sandy hammocks, U. keys.—[E. K.]—(*Cuba*.)

4. *I. sagittata* Cav. Stems twining: leaf-blades 3-10 cm. long, sagittate or hastate-sagittate, the segments linear or lanceolate, the basal ones about half as long as the terminal one: sepals 6-9 mm. long: corolla 5-6 cm. long.—Pinelands and hammocks, L. keys.—[E. K.]—(*Ber., Bah., Cuba*.)

5. *I. Batatas* (L.) Lam. Stems from tuberous edible roots, the branches trailing: leaf-blades ovate, 5-11 cm. long, entire or angulately lobed, cordate: sepals unequal, ovate-lanceolate or lanceolate, acuminate: corolla 3-5 cm. long, white varying to shades of pink or purple.—Pinelands, hammocks and waste places, U. keys, L. keys. Nat. of the E. Indies.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—SWEET-POTATO.

6. *I. triloba* L. Stems twining: leaf-blades ovate, 4-10 cm. long, entire or hastately 3-lobed, glabrate: sepals pubescent, oblong or suborbicular, 8-10 mm. long, acute or acuminate: corolla purple, 1.5 cm. long: capsules subglobose, 6-8 mm. in diameter, often pubescent: seeds glabrous.—Hammocks and sandy shores, L. keys.—(*Bah., Cuba, Ant.*)

4. **CALONYCTION** Choisy. High-twining vines. Leaf-blades broad. Flowers showy. Calyx-lobes herbaceous, becoming leathery, the outer ones sometimes horned at the apex. Corolla white, expanding in the evening, salverform: tube elongate, not dilated at the throat. Capsules large, longer than broad.—MOON-FLOWER.

Outer sepals horned: leaf-blades thin-textured.

1. *C. aculeatum*.

Outer sepals obtuse: leaf-blades thick-textured.

2. *C. tuba*.

1. *C. aculeatum* (L.) House. Leaf-blades ovate, 5-15 cm. long, entire or hastately 3-5-lobed: calyx-lobes about 1 cm. long: corolla-tube slender, 10-12 cm. long; limb 10-13 cm. wide.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

2. *C. tuba* (Schlecht.) Colla. Leaf-blades ovate, acute, entire, cordate, 10-15 cm. long: calyx-lobes unequal, greenish, 2-2.5 cm. long: corolla-tube 10-14 cm. long; limb 8-10 cm. wide.—Coastal hammocks, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

5. **JACQUEMONTIA** Choisy. Trailing or twining vines or upright shrubs or herbs. Leaf-blades entire or rarely toothed or lobed. Flowers in loose

cymes without conspicuous bracts, or solitary. Calyx-lobes equal or unequal. Corolla white, blue, or violet, funnelform or rotate-funnelform: limb plaited. Capsule subglobose, 4-valved or sub-8-valved.

Corolla blue: plants annual: calyx-lobes over 4 mm. long.

1. *J. pentantha*.

Corolla white: plants perennial: calyx-lobes less than 4 mm. long.

Corolla less than 1.5 cm. wide: capsule acute.

2. *J. jamaicensis*.

Corolla over 2 cm. wide: capsule obtuse.

3. *J. reclinata*.

1. *J. pentantha* (Jacq.) G. Don. Stems pubescent or glabrate, 3-10 dm. long; leaf-blades ovate or ovate-lanceolate, 2-5 cm. long, truncate or subcordate at the base: corolla about 2 cm. long, the slightly angular lobes acute.—Hammocks and thickets, U. keys, L. keys.—(*Cuba, Ant.*)

2. *J. jamaicensis* (Jacq.) Hall. Erect or ascending, finely pulverulent-pilose: leaf-blades ovate to oblong, 5-15 mm. long, obtuse at the base, apex rounded or obtuse, rigid, revolute: peduncles 1-flowered, 6-9 mm. long; sepals obovate, 1.5-2 mm. long.—Hammocks, Bahia Honda Key.—(*Bah., Cuba, Ant.*)

3. *J. reclinata* House. Stems tomentulose or glabrate, prostrate, reclining, or ascending, woody below, often 1-2.5 m. long: leaf-blades oblong to ovate-orbicular, 1-3 cm. long, obtuse or retuse: peduncles usually shorter than the leaves: calyx-lobes ovate: corolla white, 2.5-3 cm. broad: capsules 4-5 mm. long.—Coastal sand-dunes, U. S. keys.—(*Bah., Cuba.*)

### FAMILY 3. HYDROLEACEAE. WATER-LEAF FAMILY.

Annual or perennial herbs, or shrubby plants. Leaves alternate or opposite: blades toothed, lobed, or dissected, or rarely entire. Flowers perfect, in scorpioid racemes, or in cymes. Calyx of 5 partially united sepals. Corolla regular, of 5 partially united petals, the tube often appendaged within. Androeceium of 5 stamens, the filaments partially adnate to the corolla. Gynoeceium 2-carpellary. Fruit a capsule.

1. *MARILAUNIDIUM* Kuntze. Annual or perennial herbs. Leaf-blades entire. Flowers solitary in axils. Calyx slightly accrescent: lobes narrow. Corolla often blue, funnelform to nearly salverform: filaments often unequal, filiform. Styles distinct.

1. *M. jamaicense* (L.) Kuntze. Branches 1-4 dm. long, spreading or prostrate: leaf-blades spatulate, often broadly so, 1-5 cm. long: calyx-lobes narrowly linear or nearly so, 5-8 mm. long, ciliate: corolla white or purple, about as long as the calyx: capsules 8-10 mm. long.—Hammocks and waste places, L. keys.—(*Ber., Bah., Cuba, Ant.*)

### FAMILY 4. SOLANACEAE. POTATO FAMILY.

Herbs, shrubs, trees, or vines. Leaves alternate: blades entire, toothed, or lobed. Calyx of 5 (4-6), more or less united sepals. Corolla of 5 (4-6), more or less united petals. Androeceium of 5 (4-6), stamens, the filaments partially adnate to the corolla-tube. Gynoeceium 2-carpellary, or 3-5-carpellary. Fruit a berry or a capsule.

Fruit a berry: corolla not funnelform, except in *Lycium*.

Corolla plicate: lobes usually induplicate.

Berry enclosed in the accrescent calyx: anthers not connected.

1. *PHYSALIS*.

Berry seated in the little changed calyx: anthers connate or converging.

Anther-sacs opening by terminal pores or short-slits.

2. *SOLANUM*.

Anther-sacs opening lengthwise and introrsely.

3. *LYCOPERSICON*.

Corolla little, if at all plicate: lobes imbricate or valvate.



Stamens adnate to the base of the corolla tube: corolla rotate.

Stamens adnate high up on the corolla-tube: corolla salverform or funnelform.

Stamens unequal; filaments adnate to the mouth of the corolla-tube: seeds flattened.

Stamens equal or nearly so; filaments adnate to the middle of the corolla-tube: seeds not flattened.

Fruit a capsule: corolla funnelform.

4. CAPSICUM.

5. LYCIUM.

6. CESTRUM.

7. DATURA.

1. **PHYSALIS** L. Herbs. Leaf-blades entire or sinuate. Flowers axillary, nodding, mostly solitary. Calyx bladder-like at maturity, with the lobes converging. Corolla mainly white or yellow and often dark in the center.—GROUND-CHERRY. JERUSALEM-CHERRY.

Plants annual, with much branched roots.

Plants viscid-pubescent: calyx hirsute: mature calyx conic.

Fruiting calyx long-acuminate: leaf-blades scarcely oblique at the base, cordate, abruptly acuminate.

Fruiting calyx not long-acuminate: leaf-blades very oblique.

Plants glabrous: calyx glabrous: mature calyx ovoid.

Plants perennial, with horizontal rootstocks.

Plants densely pale-pubescent: calyx stellate-pubescent.

Plants glabrous or nearly so: calyx glabrous, except the margin.

1. *P. barbadensis*.

2. *P. floridana*.

3. *P. angulata*.

4. *P. viscosa*.

5. *P. angustifolia*.

499 1. *P. barbadensis* Jacq. Stems generally pubescent and viscid, stout, acutely 3-4-angled: leaf-blades 3-6 cm. long, heart-shaped, acute or generally abruptly acuminate, sharply repand-dentate, pubescent with short hairs: peduncles 3-4 mm. long, at maturity sometimes 2 cm. long: calyx generally densely viscid-hirsute; lobes lanceolate, acuminate, but not subulate-tipped: corolla 5-10 mm. in diameter: anthers generally purplish: fruiting calyx 2.5-3 cm. long, attenuate, almost conic, reticulate, retuse at the base.—Pinelands and sandy places, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

498 2. *P. floridana* Rydb. Stems diffusely branched, angled, densely villous with long white viscid hairs: leaf-blades rounded, cordate, oblique at the base, 2-5 cm. long, coarsely sinuately toothed, obtuse, sparingly viscid-pubescent on both sides: peduncles short, in fruit about 1 cm. long: calyx densely viscid pubescent; lobes lanceolate, acuminate: corolla 6-8 mm. in diameter, yellow with purple spots: anthers purplish: fruiting calyx 2-2.5 cm. long, 5-angled, deeply retuse at the base.—Hammocks and cultivated grounds, U. keys.

499 3. *P. angulata* L. Stems angular, 0.5-1 m. tall, glabrous: leaf-blades ovate, with a more or less cuneate base, sharply sinuate, with long-acuminate teeth, thin, 4-7 cm. long; nerves not prominent; petioles slender, 2-4 cm. long: peduncles slender, 2-3 cm. long, erect, often reflexed at maturity, but seldom exceeding the fruiting calyx in length: calyx glabrous; lobes triangular to lanceolate, generally shorter than the tube: corolla 5-10 cm. in diameter: anthers more or less purplish-tinged: fruiting calyx about 3 cm. long, ovoid, not prominently 5-10-angled, sometimes purple-nerved and at length nearly filled with the yellow berry.—Hammocks, Key West.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

500 4. *P. viscosa* L. Stems from slender horizontal rootstocks, slender, creeping, cinereous with dense stellate pubescence or in age rarely glabrate: leaf-blades elliptic, oval, or ovate, obtuse, thinnish, entire or undulate, sometimes cordate at the base (spatulate or oblong, with a tapering base, in *P. viscosa maritima*): peduncles 1-2 cm. long: calyx stellate-pubescent; lobes triangular, generally shorter than the tube: corolla greenish-yellow with a darker center, 1.5-2 cm. in diameter: fruiting calyx 2-3 cm. long, rounded ovoid, scarcely sunken at the base: berry orange or yellow.—Coastal sand-dunes, U. S. keys.—[E. K.]



5. *P. angustifolia* Nutt. Stems from slender elongate and creeping rootstocks, with the foliage often glabrous except the margins of the calyx-lobes or rarely sparsely stellate all over when young, diffusely branched, angled: leaf-blades linear or linear-oblancoate, tapering into the petiole, entire, thickish; nerves except the midrib, generally obsolete: peduncles 2-3 cm. long, filiform, generally erect, 4-5 cm. long and reflexed at maturity: calyx glabrous, except the stellate-ciliate margins of the rounded triangular lobes: corolla about 2 cm. broad, yellow and with purple center: anthers yellow: fruiting calyx 1.5-2 cm. long, ovoid, obscurely angled, scarcely sunken at the base.—Pinelands and hammocks, U. keys, L. keys.—[E. K.]

2. **SOLANUM** [Tourn.] L. Herbs, shrubs, trees, or vines. Leaf-blades entire, toothed, or lobed. Flowers variously clustered. Calyx sometimes accrescent. Corolla rotate, of various colors: lobes longer than the tube. Anthers narrow, converging or united, much longer than the filaments.

Berry seated in the calyx.

Herbs.

Corolla mostly less than 8 mm. wide: calyx-lobes spreading at maturity: foliage glabrous or nearly so. 1. *S. nigrum*.

Corolla mostly over 8 mm. wide: calyx-lobes appressed to the berry: foliage puberulent or pubescent. 2. *S. gracile*.

Shrubs or trees.

Leaf-blades velvety-tomentose beneath, unarmed.

Corolla-lobes ovate to oval-ovate: ovary pubescent: berries yellow. 3. *S. verbascifolium*.

Corolla-lobes linear to linear-lanceolate or lanceolate: ovary glabrous: berries red. 4. *S. Blodgettii*.

Leaf-blades finely and rather harshly pubescent beneath, often spiny.

5. *S. bahamense*.  
6. *S. rostratum*.

Berry enclosed in the calyx.

1. *S. nigrum* L. Herbaceous annual, 1-12 dm. tall: leaf-blades ovate to oblong-ovate, 2-8 cm. long, undulate or deeply repand: calyx-lobes fully 1 mm. long: corolla white; lobes lanceolate to oblong-lanceolate: berries subglobose, 4-6 mm. in diameter.—Hammocks and cultivated grounds, L. keys.—[E. K.]—(Ber., Bah., Cuba, Ant.)—COMMON-NIGHTSHADE.

2. *S. gracile* Link. Herbaceous annual, 1-14 dm. tall: leaf-blades lanceolate to ovate or oblong-ovate, 2.5-11 cm. long, undulate or repand: calyx-lobes fully 1.5 mm. long: corolla white or bluish; lobes lanceolate to oblong-lanceolate: berries subglobose, 6-10 mm. in diameter.—Pinelands and waste places, L. keys.—[E. K.]—(Bah., Cuba, Ant.)

3. *S. verbascifolium* L. Shrub or small tree: leaf-blades oblong to oblong-ovate or ovate, 10-30 cm. long, velvety-tomentose, entire: calyx-lobes ovate, ciliate, obtuse: corolla white, 15-18 mm. wide; lobes ovate to oval-ovate, acutish, ciliate: anthers oblong: ovary pubescent: berries globular, 10-20 mm. in diameter, yellow.—Hammocks, U. keys, L. keys.—[E. K.]—(Bah., Cuba, Ant.)—POTATO-TREE.

4. *S. Blodgettii* Chapm. Shrub with simple or sparingly branched stems, 3-18 dm. tall: leaf-blades oblong, often narrowly so, 5-15 cm. long, hoary-scurfy and tomentulose, undulate: calyx-lobes oblong: corolla white or bluish, 14-17 mm. wide; lobes linear to linear-lanceolate or lanceolate, obtuse: anthers linear: ovary glabrous: berries red, 4-6 mm. in diameter.—Hammocks and lime-sinks in pinelands, L. keys.—[E. K.]—(Bah.)

5. *S. bahamense* L. Shrub with much-branched stem, 5-20 dm. tall: leaf-blades oblong to oblong-lanceolate, 4-12 cm. long, thinly rough-pubescent, undulate: calyx-lobes ovate to oblong-ovate, as long as the tube or shorter: corolla violet-blue, sometimes pale, 10-12 mm. wide; lobes linear or nearly so, acute or acutish: anthers linear: ovary glabrous: berries red, 6-8 mm. in diameter.—Hammocks and coastal sand-dunes, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(Bah., Cuba, Ant.)

504 6. *S. rostratum* Dunal. Herbaceous annual, hoary- or yellowish-pubescent, 2-7 dm. tall: leaf-blades 1-2-pinnatifid, 5-12 cm. long: calyx spinescent; lobes lanceolate or linear-lanceolate: corolla yellow, about 25 mm. wide; lobes ovate to lanceolate, shorter than the tube: berries enclosed.—Hammocks, Solder Key. Introduced.—SAND-BUR. BEAKED-NIGHTSHADE.

7 3. *LYCOPERSICON* Mill. Heavy-scented herbs. Leaf-blades 1-2-pinnately divided. Flowers in cymes. Calyx not accrescent. Corolla rotate, yellow: lobes longer than the tube. Stamens as in *Solanum*.

508 1. *L. Lycopersicon* (L.) Karst. Plants clammy-pubescent, 3-12 dm. tall: leaf-blades 1-4 dm. long, the divisions ovate to oblong or lanceolate, coarsely toothed or incised: calyx-lobes narrow, acute: corolla mainly 1.5-2 cm. wide: berries mostly 5-15 cm. wide, red.—Pinelands, cultivated grounds, and waste places, U. keys, L. keys. Nat. of Trop. Am.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—TOMATO.

509 4. *CAPSICUM* [Tourn.] L. Herbs or shrubs, unarmed. Leaf-blades flat, entire, or repand. Flowers axillary or cymose. Calyx truncate or minutely lobed. Corolla usually white, nearly rotate: lobes nearly as long as the tube. Anthers longer than the glabrous filaments. Stigma minute.—PEPPER.

Calyx-lobes manifest: corolla-lobes broadly acute.

1. *C. baccatum*.

Calyx-lobes obsolete: corolla-lobes rather abruptly pointed.

2. *C. frutescens*.

507 1. *C. baccatum* L. Stems 1-3 m. tall: leaf-blades ovate, oblong-ovate to ovate-lanceolate, 2-5 cm. long: calyx mainly 2.5-3 mm. long: corolla about 5 mm. long: berries 5-10 mm. long, red.—Hammocks, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

500 2. *C. frutescens* L. Stems 0.5-2 m. tall: leaf-blades ovate to ovate-lanceolate, 1-3 cm. long: calyx mainly 1.5-2 mm. long: corolla about 4 mm. long: berries 8-12 mm. long, red.—Hammocks, U. keys, L. keys.—[E. K.]—(*Ber., Cuba, Ant.*)

5 5. *LYCIUM* L. Shrubs or woody vines, commonly spiny. Leaf-blades thick, sometimes terete, entire. Flowers axillary, sometimes clustered. Calyx markedly lobed. Corolla white or colored, funnelform, salverform, or nearly campanulate: lobes longer than the usually short tube, or shorter. Anthers shorter than the pubescent filaments. Stigma dilated.

511 1. *L. carolinianum* Walt. Plants 3-15 dm. tall, with recurving branches: leaves succulent, 0.5-2 cm. long: calyx-lobes deltoid or triangular-ovate, acute: corolla blue or lilac, or nearly white; lobes 3-6 mm. long: berries red, 8-12 mm. long.—Hammocks and coastal sand-dunes, U. S. keys, U. keys, L. keys.—[E. K.]—(*Cuba.*)

512 6. *CESTRUM* L. Shrubs or trees. Leaf-blades entire. Flowers in axillary clusters, sometimes aggregated into a panicle or corymb. Calyx markedly lobed. Corolla white or colored, funnelform or salverform: lobes much shorter than the tube. Filaments adnate to the middle of the corolla-tube, or above it, glabrous: anthers globular. Stigma enlarged.

513 1. *C. diurnum* L. Plants minutely pubescent, 1-2.5 m. tall: leaf-blades oblong to oblong-lanceolate, 5-12 cm. long; petioles mostly less than 10 mm. long: calyx about 3 mm. long; tube campanulate; lobes broadly ovate: corolla 11-13 mm. long; lobes rounded.—Hammocks, Key West.—Nat. of Trop. Am.—(*Cuba, Ant.*)—DAY-JESSAMINE.

7. **DATURA** L. Herbs (ours annuals), shrubs or trees. Leaf-blades undulate or lobed. Flowers solitary in axils. Calyx tubular, sometimes prismatic, more or less lobed. Corolla white or colored, funnelform. Filaments slightly unequal.—THORN-APPLE.

Capsule nodding; prickles stout, corrugated at the base: corolla over 12 cm. long.

1. *D. fastuosa*.

Capsule erect; prickles slender, not corrugated: corolla less than 12 cm. long.

2. *D. Stramonium*.

51 1. **D. fastuosa** L. Plants 1-2 m. tall; leaf-blades ovate-lanceolate, elliptic or oval, 5-15 cm. long, undulate or repand-dentate: calyx 5-6.5 cm. long; lobes ovate to triangular-ovate: corolla violet without, 14-18 cm.: capsules oval or ovoid, 4-6 cm. long.—HAMMOCKS and waste places, Key West.—(*Bah., Cuba, Ant.*)

20 2. **D. Stramonium** L. Plants green or purple-tinged, 2-12 dm. tall; leaf-blades ovate to oblong, 10-20 cm. long, sinuate or laciniate-toothed: calyx 3-5 cm. long; lobes 5-7 mm. long: corolla white (or violet to lavender on purple-stemmed plants, in *D. Tatula*), 6-10 mm. long: capsules 4-6 cm. long, the prickles sharp.—Cultivated grounds and waste places, Key West. Nat. of Trop. Am.—(*Ber., Bah., Cuba, Ant.*)—STRAMONIUM. JAMESTOWN-WEED. JIMSON-WEED.

#### FAMILY 5. EHRETIACEAE. EHRETIA FAMILY.

Shrubs, trees, or sometimes herbs. Leaves mainly alternate: blades mostly entire. Flowers perfect, cymose. Calyx of 5 (4-6), partly united sepals. Corolla of 5 (4-6), partially united petals. Androecium of 5 (4-6), stamens, the filaments more or less adnate to the corolla-tube. Gynoecium 2-4-carpellary: styles 2 and distinct, or partially united, or united by pairs. Fruit drupaceous or of 4 nutlets.

Styles, and stigmas, 4, unequally united by pairs: drupe with a 4-celled stone: cotyledons plaited or corrugated.

Corolla long-funnelform; limb deeply lobed: calyx-tube cylindric.

1. SEBESTEN.

Corolla short-funnelform; limb slightly lobed: calyx-tube campanulate.

2. VARRONIA.

Styles, and stigmas, 2: drupe with 2 or 4 stones: cotyledons flat.

3. BOURRERIA.

41 1. **SEBESTEN** Adans. Shrubs or trees. Flowers in open clusters. Sepals usually united to above the middle. Corolla bright-colored, shallowly or deeply lobed. Filaments adnate to above or below the middle of the corolla-tube. Fruits included, adnate to the accrescent calyx.

51 1. **S. Sebestena** (L.) Britton. Shrub or small tree, the twigs strigose: leaf-blades ovate or oblong-ovate, 8-12 cm. long, undulate or repand: calyx 14-19 mm. long; tube cylindric: corolla-lobes much shorter than the tube: fruits oval or ovoid, 2-3 cm. long.—HAMMOCKS and sand-dunes, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—GEIGER-TREE.

13 2. **VARRONIA** Jacq. Shrubs, trees, or vines. Flowers in open clusters or in heads. Sepals usually united to above the middle. Corolla white or colored, shallowly or deeply lobed. Filaments adnate to above or below the middle of the corolla-tube.

51 1. **V. globosa** Jacq. Plant woody, 1-3 m. tall: leaf-blades ovate to oblong-ovate, 1-5 cm. long, serrate: calyx about 8 mm. long: corolla white, 5-7 mm. long.—HAMMOCKS, L. keys.—(*Bah., Cuba, Ant.*)

3. **BOURRERIA** P. Br. Shrubs or trees. Flowers in corymbose cymes. Sepals united to above the middle. Corolla white or colored, prominently lobed. Filaments adnate to above or below the middle of the corolla-tube.

Leaf-blades short-petioled: free portions of the filaments short, about as long as the anthers.

Leaf-blades slender-petioled: free portions of the filaments several times longer than the anthers.

1. *B. revoluta*.

2. *B. ovata*.

577 1. **B. revoluta** H.B.K. Shrub or small tree: leaf-blades oblong to obovate, mostly 2-7 cm. long, abruptly pointed, rounded or notched, permanently rough-pubescent and ciliate, or sometimes smooth: cymes several-flowered: calyx 6-7 mm. long; lobes ovate, mostly less than  $\frac{1}{2}$  as long as the tube: corolla white; tube much exceeding the calyx; larger lobes 5-6 mm. wide: anthers about 2.5 mm. long; drupes orange, slightly depressed, 9-11 mm. wide.—Hammocks, Key West.—[E. K.]—(*Cuba, Ant.*)—ROUGH-STRONGBACK.

518 2. **B. ovata** Miers. Shrub or small tree, with glabrous twigs: leaf-blades obovate to oblong-obovate or oval-obovate, 4-12 cm. long, smooth: calyx 6-7 mm. long: lobes triangular, fully  $\frac{1}{2}$  as long as the tube: corolla white: tube rather short; lobes slightly shorter than the tube: stamens exserted; anthers about 2 mm. long; drupe orange, about 1 cm. wide.—Hammocks, U. keys, L. keys.—(*Bah., Cuba, Ant.*)—STRONGBACK.

#### FAMILY 6. **HELIOTROPIACEAE.** HELIOTROPE FAMILY.

Herbs, shrubs, or woody vines. Leaves alternate: blades entire, or rarely toothed. Flowers perfect, mostly in scorpioid spikes or racemes. Calyx of 5 more or less united sepals. Corolla various, of 5 partially united petals. Androecium of 5 stamens, the filaments more or less adnate to the corolla-tube. Gynoecium 2-4-carpellary. Stigma annular, surmounted by an appendage. Fruit drupaceous, or dry and of 2-4 nutlets.

Shrubs, trees or woody twiners: fruit drupaceous.

1. **TOURNEFORTIA**.

Herbs or shrubby herbs: fruit dry, separating into nutlets.

2. **HELIOTROPIMUM**.

57 1. **TOURNEFORTIA** L. Plants erect or climbing. Sepals well united (ours). Corolla white or pale. Stamens adnate to near the top of the corolla-tube. Fruit drupaceous.

Plants densely and conspicuously silky-tomentose: leaves very numerous and crowded: corolla-lobes ovate to suborbicular.

1. *T. gnaphalodes*.

Plants minutely and inconspicuously pubescent: leaves relatively few and distant: corolla-lobes lanceolate to subulate.

2. *T. volubilis*.

517 1. **T. gnaphalodes** (Jacq.) R. Br. Fleshy shrub, 3-18 dm. tall, the pubescence white or whitish: leaf-blades linear-spatulate, 4-10 cm. long: calyx-lobes shorter than the tube: corolla-lobes 2-3 mm. long: fruit ovoid, about 5 mm. long.—Coastal sand-dunes and hammocks, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—SEA-LAVENDER.

510 2. **T. volubilis** L. Woody vine, the pubescence usually rusty: leaf-blades ovate to oblong-lanceolate, 2-6 cm. long: calyx-lobes longer than the tube: corolla-lobes about 1 mm. long: fruit depressed, 2.5-3 mm. wide.—Hammocks and thickets, U. keys, L. keys.—(*Bah., Cuba, Ant.*)

3. **HELIOTROPIMUM** [Tourn.] L. Plants erect, diffuse or prostrate. Sepals nearly distinct. Stamens adnate to the lower part of the corolla-tube. Style very short. Fruit 4-lobed, an aggregate of 4 nutlets.—HELIOTROPE.

Corolla white, except the sometimes colored "eye," or turning blue, less than 5 mm. long.



Anthers without terminal appendages: larger calyx-lobes linear, lanceolate or oblong-lanceolate.

Diffusely decumbent succulent plant: the four nutlets early separating.

Erect much branched plant, not succulent: the nutlets rather persistently united by pairs.

Anthers with terminal appendages: larger calyx-lobes ovate-lanceolate.

Corolla yellow, over 7 mm. long: perennial.

1. *H. curassavicum*.

2. *H. parviflorum*.

3. *H. phyllostachyum*.

4. *H. Leavenworthii*.

1. *H. curassavicum* L. Plants perennial, or mainly so, 1-4 dm. tall: leaf-blades spatulate, varying to obovate or linear, mainly 2-6 cm. long: calyx-lobes lanceolate to oblong-lanceolate, 1.5-2 mm. long: corolla white, except the yellow eye, turning blue; tube about 2 mm. long: fruits 2-2.5 mm. long.—Hammocks, shores and waste places, U. keys, L. keys, L. S. keys.—(*Bah., Cuba, Ant.*)

2. *H. parviflorum* L. Plants annual, 2-12 dm. tall: leaf-blades elliptic to oblong-lanceolate, 2-7 cm. long, veiny: calyx-lobes lanceolate to linear, 1-1.5 mm. long: corolla white; tube 1-1.5 mm. long: fruits about 2 mm. wide.—Hammocks and pinelands, U. S. keys, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

3. *H. phyllostachyum* Torr. Plants annual, 0.5-2 dm. tall: leaf-blades oblong to elliptic, 1-2.5 cm. long: calyx-lobes lanceolate, or the larger one ovate-lanceolate, 2-3 mm. long: corolla white; tube 2-3 mm. long; lobes about 1 mm. long: fruits about 1.5 mm. wide.—Hammocks and waste places, Key West.

4. *H. Leavenworthii* Torr. Plants 2-11 dm. tall: leaf-blades linear to linear-elliptic, 1-2 cm. long: calyx-lobes lanceolate, 3-4 mm. long: corolla pale-yellow; limb 7-8 mm. wide, angular.—Hammocks, U. keys.—[E. K.]

#### FAMILY 7. VERBENACEAE. Vervain Family.

Herbs, shrubs, or trees. Stems commonly angled. Leaves alternate, opposite, or whorled: blades simple or rarely compound. Calyx of 4 or 5 partially or wholly united sepals. Corolla of 4 or 5 partially united petals, sometimes 2-lipped. Androecium of 2 or 4 stamens, the filaments more or less adnate to the corolla-tube. Gynoecium 2-4-carpellary, the style terminal. Fruit baccate or drupaceous, or an aggregate of 2 or 4 nutlets.

Flowers in heads, spikes or spike-like racemes.

Fruit of 2 or 4 nutlets, dry.

Stamens 4: fruit not imbedded in the rachis.

Fruit of 4 nutlets.

Fruit of 2 nutlets.

Calyx not inflated at maturity.

Calyx inflated at maturity and enclosing the fruit.

Stamens 2: fruit imbedded in excavations of the thick rachis.

Fruit drupaceous.

Flowers in open racemes.

Drupe seated in the calyx: nutlets 2: stigma 2-lobed.

Drupe enclosed in the calyx: nutlets 4: stigma 4-lobed.

1. VERBENA.

2. PHILA.

3. PRIVA.

4. VALERIANOIDES.

5. LANTANA.

6. CITHAREXYLUM.

7. DURANTA.

1. *VERBENA* [Tourn.] L. Herbs. Leaf-blades coarsely toothed or dissected. Flowers in depressed capitate spikes, which elongate somewhat in age, the bracts narrow. Calyx tubular, 5-lobed. Corolla white or colored, salverform. Anthers of the larger stamens with an appendaged connective.

1. *V. maritima* Small. Perennial, the diffuse or widely creeping branches 2-20 dm. long: leaf-blades cuneate to orbicular-obovate, 1-4 cm. long, incised, few-toothed or lobed: calyx 9-11 mm. long, the larger lobes subulate-lanceolate: corolla purplish: nutlets 4 mm. long.—Coastal sand-dunes, U. S. keys.—[E. K.]—VERBENA.



32 2. **PHYLA** Lour. Herbs. Leaf-blades toothed or lobed. Flowers in congested axillary spikes, the bracts cuneate to flabellate. Calyx flattened, 2-lobed. Corolla 2-lipped: tube scarcely exceeding the calyx. **FROG-FRUIT.**

57 1. **P. nodiflora** (L.) Greene. Plants soft-strigillose, with creeping branches 2-13 dm. long: leaf-blades spatulate, 1-3 cm. long: spikes 10-30 mm. long: calyx about 2 mm. long: corolla about 2 mm. long: fruits about 1 mm. long.—Hammocks and low sandy places, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

3. **PRIVA** Adans. Perennial herbs. Leaf-blades thin, toothed. Flowers in elongate slender spikes or racemes. Calyx 5-lobed. Corolla white or colored, often pale, salverform, slightly 2-lipped. Stamens 4. Staminodia minute or obsolete. Nutlets tuberculate or spiny.

52 1. **P. lappulacea** (L.) Pers. Stems 2-6 dm. tall, pubescent: leaf-blades ovate, 2-10 cm. long, serrate: racemes loose-flowered: calyx with minute lobes: corolla-lobes rounded: fruit ovoid-pyramidal, included, the nutlets 3-4 mm. long, spiny-tuberculate. [*P. echinata* Juss.]—Hammocks and cultivated grounds, Key West.—(*Bah., Cuba, Ant.*)—VELVET-BUR.

4. **VALERIANOIDES** Boerh. Herbs, or shrubby plants. Leaf-blades toothed. Flowers sessile on a stout rachis or in excavations. Calyx often unequally 5-lobed, scarcely accrescent. Corolla white or colored, salverform, slightly 2-lipped. Stamens 2. Staminodia 2.

54 1. **V. jamaicensis** (L.) Kuntze. Plants with spreading branches, 6-15 dm. long: leaf-blades oblong, ovate, or oval, 2-8 cm. long: spikes virgate, quill-like: corolla blue, 8-11 mm. long; limb 7-8.5 mm. wide.—Pinelands and coastal sand-dunes, and waste places, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

5. **LANTANA** L. Shrubs or rarely herbs, sometimes prickly-armed. Leaf-blades toothed. Flowers in congested, flat-topped spikes. Calyx shallowly 2-5-lobed, or truncate. Corolla white or colored: tube slightly curved: limb irregular. Stamens 4.

Flower-heads involucre: corolla mainly white.

Outer bracts of the involucre ovate.

Outer bracts of the involucre lanceolate or oblong-lanceolate.

Flower-heads bracted, but not involucre: corolla yellow, orange or reddish.

1. *L. involucrata*.

2. *L. odorata*.

3. *L. ovatifolia*.

54 1. **L. involucrata** L. Shrub 4-17 dm. tall, with puberulent or tomentulose foliage: leaf-blades oval, obovate, or suborbicular, 1-3 cm. long, usually cuneate at the base: outer bracts of the involucre 4-7 mm. long, ciliate: calyx becoming 1.5 mm. long: corolla white or pale-purple; tube 2-4 mm. long; limb 2-4 mm. high.—Hammocks and sand-dunes, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

53 2. **L. odorata** L. Similar to *L. involucrata* in habit: leaves similar but commonly larger: bracts of the involucre narrower, the outer lanceolate or oblong-lanceolate: flowers often smaller.—Hammocks, U. S. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

3. **L. ovatifolia** Britton. Diffusely branched erect shrub, mostly 1-1.5 m. tall, rough-pubescent: leaf-blades ovate to oblong-ovate, thick, 2-7 cm. long, obtuse or acute, shallowly crenate or crenate-serrate, rough-pubescent and rugose, usually broadly cuneate at the base: spikes solitary or several together, showy: bracts linear to linear-lanceolate: calyx campanulate, about 3 mm. long, 2-lobed, the lobes ciliate: corolla yellow or yellow-red, 10-15 mm. long; tube pubes-

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cent, slightly enlarged below the middle; limb spreading, the upper lip reniform, the lower lip 3-lobed, the middle lobe reniform: drupes black, subglobose, about 5 mm. in diameter.—Hammocks and coastal sand-dunes, U. S. keys.—[E. K.]—(*Bah.*)

6. **CITHAREXYLUM** L. Shrubs or trees, sometimes spiny. Leaf-blades mainly entire. Flowers in clusters or long spikes. Calyx obscurely 5-lobed. Corolla mainly white: tube straight or nearly so: limb slightly oblique, nearly equally 5-lobed. Staminodia present. Drupe rather dry.

1. **C. fruticosum** L. Shrub or small tree, with softly pubescent twigs: leaves 5–15 cm. long; blades elliptic, oblong, or oblong-obovate, veiny: flowers in spikes or racemes: fruit 9–10 mm. long. [*C. villosum* Chapm. Not Jacq.]—Hammocks, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—FIDDLEWOOD.

7. **DURANTA** L. Shrubs or trees, often spine-armed. Leaf-blades entire or toothed. Flowers in racemes. Calyx more or less prominently, but minutely 5-lobed. Corolla salverform or funnellform: tube mainly curved: limb slightly unequally 5-lobed. Staminodia mostly obsolete. Stigma 4-lobed. Nutlets 4.

1. **D. repens** L. Shrub or small tree: leaf-blades ovate-elliptic, oval or obovate, 1.5–5 cm. long: racemes 5–15 cm. long, recurving: calyx 3–4 mm. long, angled: corolla lilac; limb 7–9 mm. wide, the lobes ciliolate: fruits 7–11 mm. in diameter, enclosed in the calyx.—Hammocks, Key West.—(*Ber., Bah., Cuba, Ant.*)—GOLDEN-DEWDROP.

#### 15 FAMILY 8. **AVICENNIACEAE.** BLACK-MANGROVE FAMILY.

Shrubs or trees of maritime regions, the branches terete, nodose. Leaves opposite, persistent: blades entire. Flowers in axillary small cymes. Calyx of 5 nearly distinct sepals. Corolla of 4 partially united petals, campanulate-rotate. Androecium of 4 stamens, the filaments adnate to the lower part of the corolla-tube. Gynoecium of 2 united carpels. Fruit a compressed oblique capsule.

1. **AVICENNIA** L. Leaf-blades thick. Cymes peduncled. Calyx subtended by small bracts. Corolla inconspicuous, the tube and spreading lobes about equal in length. Stamens erect. Stigmas 2. Capsule thick-walled.

1. **A. nitida** Jacq. Shrub, or tree sometimes 25 m. tall: leaf-blades leathery, oblong or nearly so, 3–8 cm. long, dark-green above, pale beneath: calyx 3–4 mm. long: corolla white: lobes longer than the tube: fruits oblong or elliptic, 3–5 cm. long, acutish.—Coastal hammocks and shores, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—BLACK-MANGROVE.

#### 27 FAMILY 9. **LAMIACEAE.** MINT FAMILY.

Herbs or woody plants, often aromatic. Stems 4-sided. Leaves opposite or whorled: blades simple, entire, toothed, or lobed. Flowers perfect, in open or compact cymes. Calyx of 5 partially united sepals, regular or 2-lipped. Corolla of 5 partially united sepals, 2-lipped or nearly regular. Androecium of 2–4 stamens, the pairs often irregular. Gynoecium 2-carpellary. Ovary 4-celled. Fruit of 4 nutlets included in the calyx.

Gynoecium with 4 united carpels; ovary 4-lobed: style not basal: nutlets laterally attached. 1. **TRICHOSTEMA.**

Gynoecium with 4 distinct, or nearly distinct, carpels: style basal: nutlets basally attached.

Corolla conspicuously 2-lipped; lips different, the upper one concave.

Anther-bearing stamens 4.

Anther-bearing stamens 2.

Anther-connective elongate, bearing a perfect sac at one end and a rudimentary one at the other.

Anther-connective short, the anther-sacs confluent.

Corolla nearly regular, the upper lobe not concave.

2. LEONOTIS.

3. SALVIA.

4. MONARDA.

5. OCIMUM.

337 1. **TRICHOSTEMA** L. Herbs or shrubby plants. Leaf-blades entire or repand. Flowers in axillary cymes. Calyx very irregular, 2-lipped. Corolla somewhat 2-lipped, the upper lip longer and narrower than the lower lip. Stamens lying against the lower corolla-lip.

534 1. **T. dichotomum** L. Plants 1-20 dm. tall: leaf-blades oblong-lanceolate, 2-7 cm. long: calyx becoming 8 mm. long; larger lip sharply 3-lobed: corolla nearly 1 cm. long: nutlets 2 mm. long.—Hammocks and sand-dunes, U. S. keys.—[E. K.]—BLUE-CURLS.

33 2. **LEONOTIS** L. Annual or perennial erect herbs or woody plants. Leaf-blades broad, toothed. Flowers in dense large remote cymes. Calyx curved, 2-lipped, the 8-10 lobes unequal, bristle-tipped. Corolla 2-lipped, curved: upper lip erect, long: lower lip much shorter than the upper, with 3 small lobes. Stamens 4: filaments minutely pubescent.

535 1. **L. nepetaefolia** R. Br. Annual, 3-20 dm. tall, soft-pubescent: leaf-blades ovate to ovate-deltoid, 4-12 cm. long, crenate: calyx becoming 2 cm. long; the upper lip longer than the tube: corolla scarlet or orange-yellow, 2-2.5 cm. long: nutlets about 3 mm. long.—Cultivated grounds and waste places, Key West.—(Ber., Bah., Cuba, Ant.)

332 3. **SALVIA** [Tourn.] L. Herbs or woody plants. Leaf-blades entire, toothed, or lobed. Flowers in interrupted or continuous panicles. Calyx 2-lipped. Corolla 2-lipped: lower lip 3-lobed, the middle lobe much larger than the lateral ones. Stamens 4, but only 2 anther-bearing, or only 2: each filament surmounted by a transverse connective, one end of which bears a long anther.

536 1. **S. serotina** L. Stems 1-7 dm. tall, finely pubescent: leaf-blades ovate to orbicular-ovate, 1-4 cm. long, crenate-serrate: calyx 6-8 mm. long: corolla 6-10 mm. long: nutlets fully 2 mm. long.—Pinelands and hammocks, and cultivated grounds, L. keys, L. S. keys.—[E. K.]—(Ber., Bah., Cuba, Ant.)—SAGE.

4. **MONARDA** L. Annual or perennial erect herbs. Leaf-blades toothed. Flowers in remote or approximate dense cymes. Calyx elongate, nearly regular: lobes 5, slender, shorter than the tube. Corolla 2-lipped, elongate: upper lip narrow, erect or arched: lower lip 3-lobed, the middle lobe much larger than the lateral ones. Stamens 2: filaments elongate: anthers with divergent sacs.

537 1. **M. punctata** L. Stems 3-10 dm. tall, finely pubescent: leaf-blades linear-oblong to lanceolate, 2-8 cm. long, serrate: calyx 8-10 mm. long; lobes short-acuminate, spreading: corolla yellowish and purple-spotted (white in *M. punctata leucantha*), 20-25 mm. long; upper lip mainly oblong-ovate.—Hammocks, L. keys.—HORSE-MINT.

33 5. **OCIMUM** [Tourn.] L. Herbs or woody plants. Leaf-blades often toothed. Flowers in raceme-like panicles. Calyx strongly 2-toothed: upper lip a broad lobe: lower lip of 2 broad lobes and 2 narrow lobes. Corolla slightly 2-lipped: lower lip of 3 nearly equal lobes.

- 528 1. *O. micranthum* Willd. Stems 2-5 dm. tall, branched: leaf-blades ovate to oblong-ovate, 1-4 cm. long, serrate: panicles continuous or nearly so: calyx 2 mm. long, becoming 6-7 mm. long, the lower lip with subulate-tipped lobes: corolla white, pink, or purplish, 4 mm. long; upper lip minutely bearded, lower lip with a notched middle lobe: nutlets about 1 mm. long.—Hammocks and low pinelands, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—BASIL.

#### FAMILY 10. RHINANTHACEAE. FIGWORT FAMILY.

Herbs, shrubs, or trees. Stems commonly terete. Leaves opposite or whorled, or alternate: blades entire, toothed, or divided. Flowers perfect, axillary, or spicate or racemose. Calyx regular or rarely 2-lipped, of 4 or 5 more or less united sepals. Corolla mostly irregular, of 4 or 5 partially united petals. Androecium of 4, usually didynamous stamens, the fifth one often represented by a staminodium, or of 2 stamens and 2 staminodia. Gynoecium 2-carpellary. Ovary 1-celled. Fruit capsular or rarely baccate.

Upper lip, or lobes, of the corolla external in the bud, or wanting.

Corolla nearly regular, about equally 5-lobed.

Corolla irregular, manifestly 2-lipped.

Lower lip, or lobes, of the corolla external in the bud.

Sepals distinct or nearly so.

Sepals partially united into a tube.

Corolla campanulate, funnelform or tubular: capsule not included in the calyx.

Corolla salverform: capsule included in the calyx.

1. BRAMIA.

2. MECARDONIA.

3. CAPRARIA.

4. AGALINIS.

5. BUCHNERA.

1. **BRAMIA** Lam. Succulent, odorless, creeping herbs. Leaf-blades broadest above the middle, entire or nearly so, sessile. Flowers axillary. Calyx with the upper lobe broadest. Corolla nearly regular. Style elongate.

1. **B. Monniera** (L.) Drake. Stem and branches glabrous, 1-6 dm. long: leaf-blades 1-2 cm. long, sometimes inconspicuously toothed: outer calyx-lobes becoming 5-6 mm. long, usually acute: corolla white or pale-blue; upper lobes retuse: capsules 5-8 mm. long.—Coastal hammocks and lime-sinks, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

2. **MECARDONIA** R. & P. Erect or diffuse, wiry herbs, the stems angled. Leaf-blades toothed, narrowed at the base. Flowers axillary. Calyx-lobes 5, unequal. Corolla mainly white or pink, 2-lipped. Stamens 4. Style short.

1. **M. tenuis** Small. Plants 0.5-4 dm. long, prostrate: leaf-blades spatulate to oblanceolate, oblong or lanceolate, 5-12 mm. long, sharply serrate: peduncles filiform: calyx-lobes becoming 5-7 mm. long: corolla 6-7 mm. long: capsules 5-6 mm. long.—Hammocks and waste places, Key West.

3. **CAPRARIA** L. Herbs or woody plants. Leaves cauline: blades toothed. Flowers axillary. Calyx-lobes 5, narrow. Corolla campanulate: lobes 5, nearly equal, about as long as the tube. Stamens 4 or 5.

1. **C. biflora** L. Stems 3-15 dm. tall, sometimes pubescent: leaf-blades oblanceolate, cuneate or oblong, 1-6 cm. long, sharply-serrate, at least above: calyx-lobes linear-lanceolate to linear-subulate, 4.5-7 mm. long: corolla white or pink, about 10 mm. long: capsules oval or oval-ovoid, about as long as the calyx.—Hammocks, pinelands, and waste places, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

4. **AGALINIS** Raf.<sup>1</sup> Slender herbs, annuals. Leaves sessile, with linear or filiform, entire blades. Flowers axillary. Calyx-lobes 5, often minute.

<sup>1</sup> Contributed by Mr. F. W. Pennell.



Corolla tubular-campanulate, pink or rose-purple: lobes all spreading, shorter than the tube. Style filiform. Capsule globose.

Flowering pedicels shorter than or equalling the bracts: seeds dark-brown: plants blackening in drying: calyx-tube not reticulate-veined; lobes not callose.

Stem smooth or sparingly scabrellous: axillary fascicles of leaves inconspicuous.

Stem scabrous: axillary fascicles of leaves conspicuous.

Flowering pedicels longer than the bracts: seeds yellowish-brown: plants not blackening in drying: calyx-tube reticulate-veined; lobes callose.

1. *A. purpurea*.

2. *A. fasciculata*.

3. *A. erecta*.

1. *A. purpurea* (L.) Pennell. Stem terete below, 3-9 dm. tall, wide-branched: axillary fascicles shorter than the leaves: leaf-blades linear, often narrowly so, scabrous on the upper surface, those of the stem 2-4 cm. long: pedicels 2-5 mm. long, in fruit slightly longer: calyx-lobes triangular-lanceolate: corolla rose-purple: anther-sacs mucronate at base: capsules 4-6 mm. long. [*Gerardia purpurea* L.]—Coastal sand-dunes and hammocks, U. S. keys.—[E. K.]

2. *A. fasciculata* (Ell.) Raf. Stem terete below, 4-9 dm. tall, much-branched: axillary fascicles equalling the leaves: leaf-blades linear, often narrowly so, scabrous on the upper surface, those of the stem 1.5-3.5 cm. long: pedicels 2-5 mm. long, in fruit slightly longer: calyx-lobes triangular-lanceolate: corolla rose-purple: anther-sacs mucronate at base: capsules 4-6 mm. long. [*Gerardia fasciculata* Ell.]—Hammocks and hollows among the sand-dunes, Big Pine Key.—[E. K.]

3. *A. erecta* (Walt.) Pennell. Stem angled, smooth, 4-6 dm. tall, stiff-branched: leaf-blades remote, linear, widening upward, obtusish or obtuse, scabrous on the upper surface, those of the stem 1-1.5 cm. long: pedicels 5-10 mm. long, in fruit reaching 15 mm., longer than the bracts: calyx-lobes minute: capsules 3-4 mm. long. [*Anonymos erecta* Walt. *Gerardia parvifolia* (Hook.) Chapm.]—Pinelands, Big Pine Key.

*Agalinis Plukenetii* (Ell.) Raf., distinguished by its much-branched habit; filiform-setaceous leaves; pedicels 5-10 mm. long and seemingly terminal flowers 25-30 mm. long, appears to have been collected many years ago on [Big] Pine Key. As this locality is considerably out of the known range of the species, and an error of labeling is possible, the record should be verified.

5. **BUCHNERA** L. Erect herbs. Leaf-blades usually toothed. Flowers spicate. Calyx-lobes 5, broad, much shorter than the tube. Corolla blue or white, salverform: limb oblique. Style short. Capsule ovoid.

1. *B. elongata* Sw. Stems 2-6 dm. tall, scabrous or hispidulous: blades of the stem-leaves oblong to linear, 1.5-8 cm. long, entire or sparingly toothed: calyx-lobes acute, the upper ones deltoid: corolla slightly hairy.—Pinelands and sand-dunes, U. S. keys, L. keys.—[E. K.]—(*Bah.*, *Cuba*, *Ant.*)—BLUE-HEARTS.

## FAMILY 11. ACANTHACEAE. ACANTHUS FAMILY.

Herbs or shrubs. Leaves alternate, opposite, or whorled: blades simple. Flowers perfect, irregular. Calyx of usually 5 partially united sepals. Corolla of 5 partially united petals, 2-lipped or sometimes essentially regular. Androeceum of 4 didynamous or of 2 equal stamens, one pair being abortive or obsolete. Gynoeceum of 2 united carpels. Ovary 2-celled. Ovules commonly 2 in each cavity. Fruit a capsule, often with a stipe-like base, the valves opening elastically.

Corolla obscurely 2-lipped; lobes spreading: stamens 4.

Calyx-lobes bristle-like: anther-sacs pointed at the base: capsule 2-4-seeded.

1. DISCHORISTE.



Calyx-lobes linear to lanceolate: anther-sacs pointless: capsule 6-20-seeded.

Corolla strongly 2-lipped; lobes erect: stamens 2.

2. RUELLIA.

3. DIAPEDIUM.

1. **DYSCHORISTE** Nees. Herbs or woody plants: leaf-blades entire. Flowers solitary or clustered in the axils. Calyx-lobes 5, very slender. Corolla blue, purple, or rarely white, slightly 2-lipped. Capsules 2-4-seeded. [*Calophanes* D. Don.]

1. **D. angusta** (A. Gray) Small. Stems 1-2 dm. tall: leaves numerous; blades 1-2.5 cm. long, spatulate below to linear-oblong or linear above: calyx-lobes linear-subulate, 9-11 mm. long: corolla-limb about 10 mm. wide: capsules 7-8 mm. long.—Pinelands and open sandy hammocks, L. keys.—[E. K.]

2. **RUELLIA** [Plum.] L. Caulescent herbs. Leaf-blades entire or toothed. Flowers axillary or sometimes in terminal clusters. Calyx 5-lobed, the lobes narrow. Corolla nearly regular. Capsules 6-20 seeded.

1. **R. hybrida** Pursh. Stems 2-6 dm. tall, more or less diffusely spreading, closely grayish-pubescent: leaf-blades ovate to oblong, 2.5-5 cm. long or larger: calyx minutely hirsute or canescent-hirsute; lobes linear-filiform, 10-15 mm. long or more: corolla light-blue, or whitish, 2.5-5 cm. long: capsules less than 15 mm. long.—Pinelands and open hammocks, L. keys.

3. **DIAPEDIUM** Konig. Annual or usually perennial herbs. Leaf-blades entire. Flowers in conspicuously bracted spikes. Calyx 5-lobed, the lobes narrow, nearly equal. Corolla 2-lipped, the upper lip erect. Filaments elongate. Capsule with an ovoid or suborbicular body.

1. **D. assurgens** (L.) Kuntze. Plants 3-11 dm. tall, often diffuse: leaf-blades ovate to elliptic or oblong-lanceolate, 2-10 cm. long: calyx 3-4 mm. long; lobes lanceolate: corolla crimson or red, 2-2.5 cm. long: capsules 7-8 mm. long.—Hammocks, U. keys, L. keys, L. S. keys.—(*Bah., Cuba, Ant.*)

## FAMILY 12. PINGUICULACEAE.<sup>1</sup> BLADDERWORT FAMILY.

Herbs growing in water or wet places. Leaves submersed and dissected, sometimes resembling rootlets and often bladder-bearing; or aerial, basal, entire; or rarely, wanting. Scapes naked or minutely scaly. Flowers irregular, perfect. Calyx of 2-5 herbaceous sepals. Corolla 2-lipped: tube spurred or saccate. Androeceum of 2 stamens, adnate to the corolla-tube on its upper side. Filaments flattened, twisted. Anthers confluent 1-celled. Gynoeceum a single 1-celled pistil, with a free-central usually globose placenta. Style thick. Stigma often unequally 2-lipped. Fruit a capsule, 2-valved or irregularly dehiscent.

1. **PINGUICULA** [Tourn.] L. Terrestrial scapose herbs. Leaves in a basal rosette: blades flat. Scapes usually several, 1-flowered, without scales or bracts. Sepals 5, more or less united. Corolla spurred at the base, the palate subulate, included in the tube.

1. **P. pumila** Michx. Leaves clammy-pubescent: scapes very slender, 5-20 cm. tall: corolla 1-2 cm. broad; spur subulate, about 3 mm. long, longer than the sac-like base of the corolla.—Low pinelands, L. keys.—[E. K.]—(*Bah., Cuba.*)—BUTTERWORT.

<sup>1</sup> Contributed by Dr. John Hendley Barnhart.

FAMILY 13. **BIGNONIACEAE.** TRUMPET-CREEPER FAMILY.

Shrubs, trees, woody vines, or rarely herbs. Leaves opposite, or rarely alternate or whorled, often tendril-bearing: blades simple or pinnately compound. Flowers perfect, usually showy. Calyx of usually 2 more or less united sepals. Corolla 5-lobed, irregular, or 2-lipped. Androecium of 5 stamens, with 1 or 3 of them reduced to staminodia, or of 4 didynamous stamens. Anthers with mostly divaricate saes. Gynoecium of 2 united carpels. Ovary 1-celled or 2-celled by the meeting of the placentae. Fruit a capsule. Seeds winged or appendaged.

Leaf-blades compound, the leaflets with toothed blades: capsules long and slender, dehiscent. 1. **TECOMA.**

Leaf-blades simple, entire: capsules short and stout, indehiscent.

Leaves clustered on spurs: blades of a spatulate or oblanceolate type: fruit rounded at the apex, with fleshy placentae. 2. **CRESCENTIA.**

Leaves alternate: blades of a broad type: fruit umbonate at the apex, with dry placentae. 3. **ENALLAGMA.**

1. **TECOMA** Juss. Shrubs or erect partially herbaceous plants. Leaf-blades unequally pinnate. Flowers clustered. Calyx tubular-campanulate, nearly equally 5-lobed. Corolla with the tube gradually enlarged into the funnelform throat. Seeds membranous-winged.

551 1. **T. stans** (L.) Juss. Plants 1-8 m. tall: leaves 1-2.5 dm. long; leaflets 7-13, the blades lanceolate to elliptic, or narrower, 4-10 cm. long, coarsely serrate: calyx 3-5 mm. long; lobes often triangular: corolla yellow, 3.5-4.5 cm. long: capsules 10-20 cm. long.—Hammocks and waste places, Key West.—[E. K.]—(*Bah., Cuba, Ant.*)—YELLOW TRUMPET-FLOWER. YELLOW-ELDER.

35 2. **CRESCENTIA** L. Trees with scaly bark. Leaves clustered on spurs: blades of a spatulate or oblanceolate type. Flowers in clusters or solitary, on the spurs, pedicelled. Calyx 2-lobed, leathery. Corolla mainly yellowish-green and magenta-streaked, with a fold between the tube and the campanulate throat: lobes 5, unequal. Anthers mostly included. Fruit relatively large, rounded at the apex, with a thick, hard pericarp: placentae fleshy. Seeds flat, obcordate.

552 1. **C. Cujete** L. Tree becoming 12 m. tall: leaf-blades 8-15 cm. long, abruptly acuminate or obtuse, narrow-based: calyx 2-3 cm. long: corolla yellowish-green and magenta-streaked; lobes undulate: capsules subglobose, oval, or oblong, 15-30 cm. long.—Hammocks and roadsides, L. keys.—(*Bah., Cuba, Ant.*)—CALABASH-TREE.

3. **ENALLAGMA** Baill. Trees with scaly bark. Leaves alternate: blades of an oblong, oval, or obovate type. Flowers solitary or clustered at the ends of the branchlets, long-pedicelled. Calyx 2-lobed, leathery. Corolla mainly whitish, purplish or greenish-yellow, with a fold between the tube and the campanulate throat: lobes 5, unequal. Anthers mostly exserted. Fruit relatively small, umbonate at the apex, with a thin brittle pericarp: placentae dry, pithy. Seeds convex, notched at both ends.

5 1. **E. latifolia** (Mill.) Small. Tree becoming 8 m. tall: leaf-blades 7-15 cm. long, abruptly pointed, broad-based: calyx 2.5-4 cm. long: corolla 5-6 cm. long, pale-purple to yellowish-white; lobes toothed: capsules oblong or oval, 5-11.5 cm. long.—Hammocks, U. keys.—[E. K.]—(*Cuba, Ant.*)—BLACK-CALABASH.

Order **PLANTAGINALES**.

Annual or perennial herbs. Leaves wholly or mainly basal, or crowded on a simple or branched caudex: blades typically 1-several-ribbed. Flowers perfect, monoecious, or dioecious, spicate. Calyx of 4 (3-5), partially united or distinct sepals. Corolla of 4 (3-5), partially united scarious and veinless petals. Androecium of 4-2 stamens (or 1 stamen). Gynoecium typically 2-carpellary. Ovary superior. Fruit capsular, usually a pyxis.

FAMILY 1. **PLANTAGINACEAE**. PLANTAIN FAMILY.

Annual or perennial herbs. Leaf-blades typically 1-several-ribbed. Corolla-lobes spreading. Style and stigma elongate.

1. **PLANTAGO** [Tourn.] L. Leaf-blades broad or narrow. Spikes usually elongate. Filaments partially adnate to the corolla-tube.—PLANTAIN.

54 1. **P. lanceolata** L. Leaves 4-30 cm. long; blades linear-elliptic to broadly elliptic, acute at the apex, or acuminate at both ends: scapes 1-7 dm. tall, ridged: spikes cylindric, dense, 1-8 cm. long: bracts rhombic, 4-5 mm. long: calyx-lobes broadly oblong to oval, 2-3 mm. long, obtuse, the 2 lower ones with closely subparallel midribs: corolla-lobes broadly lanceolate, 2-2.5 mm. long: capsules oblong, 3 mm. long.—Waste places and roadsides, Key West. Nat. of Eu.—[E. K.]—(Ber., Bah., Cuba, Ant.)—RIBWORT. RIB-GRASS.

Order **SANTALALES**.

Herbs, shrubs, or trees, mostly root- or tree-parasites. Leaves with expanded blades, or scale-like. Flowers inconspicuous, perfect or imperfect. Calyx present, but often a mere border. Corolla present or wanting. Androecium of as many stamens as there are sepals, or petals, or twice as many. Gynoecium of several united carpels: ovary more or less inferior. Fruit a drupe, a nut, or a berry.

FAMILY 1. **OLACACEAE**. XIMENIA FAMILY.

Shrubs, trees, or vines. Leaves usually alternate: blades entire or rarely toothed. Flowers perfect or polygamous, regular, in dichotomous or raceme-like cymes. Calyx of 4-6 small sepals, surmounting the hypanthium. Corolla of 4-6 distinct or united petals. Androecium of 4-12 stamens. Gynoecium 3-4-carpellary. Fruit a drupe.

Petals united to above the middle: stamens as many as the corolla-lobes and opposite them: drupe nearly enclosed in the disk. 1. **SCHOEFFIA**.

Petals nearly distinct: stamens twice as many as the petals: drupe naked. 2. **XIMENIA**.

1. **SCHOEFFIA** Schreb. Unarmed shrubs or trees. Leaf-blades thick. Hypanthium filled with an elevated disk. Sepals broad. Corolla campanulate. Anthers oval or ovoid. Ovary about  $\frac{1}{2}$  inferior.

54 1. **S. chrysophylloides** (A. Rich.) Planch. Shrub or small tree, with pale branches: leaf-blades ovate to oblong-ovate, 2-6 cm. long: corolla red or

greenish, about 4 mm. long; lobes ovate, glabrous: drupes ovoid or oval-ovoid, 10-12 mm. long.—HAMMOCKS, U. S. keys, U. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—WHITEWOOD.

2. **XIMENIA** [Plum.] L. Thorny shrubs or trees. Leaf-blades thick. Hypanthium without an elevated disk. Sepals minute. Corolla rotate. Anthers linear. Ovary nearly superior.

556 1. **X. americana** L. Shrub or small tree, with dark branches: leaf-blades oblong to elliptic or nearly so, 3-7 cm. long: corolla about 10 mm. long; lobes linear, densely pubescent within: drupes subglobose or broadly oval, 14-17 mm. long.—HAMMOCKS, pinelands and coastal sand-dunes, U. S. keys, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—TALLOW-WOOD.

### Order RUBIALES.

Herbs, shrubs, or trees. Leaves opposite, sometimes whorled. Flowers perfect or polygamous, axillary or cymose. Hypanthium present. Calyx of 2 or more, often small, sepals. Corolla of 3 or more partially united petals. Androecium of as many stamens as there are corolla-lobes or twice as many. Gynoecium 2-several-carpellary. Ovary wholly or partially inferior. Fruit a capsule, a berry, or a drupe.

#### FAMILY 1. RUBIACEAE. Madder Family.

Herbs, shrubs, trees, or vines. Leaves opposite or whorled with interpetiolar stipules. Flowers perfect or polygamous, regular or nearly so. Calyx of 2-6, or more, sepals surmounting the hypanthium, or obsolete. Corolla of 3-6, or more, partially united petals. Androecium of as many stamens as there are calyx-lobes and alternate with them. Gynoecium 2-several-carpellary.

Seeds wingless: anthers and filaments short: ovary and hypanthium short.

1. **HOUSTONIA.**

Seeds winged: anthers and filaments long: ovary and hypanthium long.

Cavities of the ovary with several or many ovules: seeds several or many.

Fruit dry.

2. **EXOSTEMA.**

Fruit pulpy.

Fruit 2-celled.

3. **CASASIA.**

Flowers in cymes.

Flowers solitary.

Sepals 5: corolla-lobes 5: free portions of the filaments short: anthers oblong or nearly so.

4. **RANDIA.**

Sepals 4: corolla-lobes 4: free portions of the filaments elongate: anthers linear.

5. **CATESBAEA.**

6. **HAMELIA.**

Fruit 5-celled.

Cavities of the ovary with a single ovule each: seed solitary.

Ovule pendulous.

7. **GUETTARDA.**

Filaments wholly or partly adnate to the corolla-tube.

Filaments not adnate to the corolla-tube.

8. **ERITHALIS.**

Inflorescence terminal.

Inflorescence axillary.

9. **CHIOCOCCA.**

Ovule not pendulous.

Corolla rotate: filaments scarcely adnate to the corolla: anthers coherent as a tube around the style.

10. **STRUMPFIA.**

Corolla not rotate: filaments manifestly adnate to the corolla-tube: anthers distinct.

Ovule or seed with a basal attachment.

11. **PSYCHOTRIA.**

Ovule or seed with a lateral attachment.

Shrubs or trees.

- Flowers in terminal clusters, the hypanthia  
 coalescent: sepals minute or obsolete. 12. MORINDA.  
 Flowers axillary and solitary: sepals slender. 13. ERNODIA.  
 Herbs.  
 Stipules relatively small or inconspicuous,  
 more or less cleft.  
 Fruit septicidal, and both carpels ven-  
 trally dehiscent. 14. BORRERIA.  
 Fruit separating into carpels, one of which  
 opens through the ventral face, the  
 other remaining closed. 15. SPERMACOCE.  
 Stipules foliaceous, usually resembling the  
 leaves. 16. GALIUM.

1. **HOUSTONIA** L. Erect or creeping herbs. Leaf-blades narrow or broad. Flowers in open or compact cymes. Sepals 4, commonly narrow. Corolla funnelform or salverform: tube long: lobes mostly shorter than the tube. Stamens 4: filaments adnate to above the middle of the corolla-tube. Style slender. Capsule seated on or in the hypanthium, flattened.

1. **H. filifolia** (A. Gray) Small. Plants loosely or diffusely branched, 0.5–2 dm. tall: blades of the stem-leaves narrowly linear to subulate, 0.5–3 cm. long: sepals lanceolate, becoming deltoid, scarcely 1 mm. long: corolla white or purplish; tube about 3 mm. long, sparingly pubescent within: capsules globose-obovoid, about 1.5 mm. long.—Pinelands and sandy places, L. keys.—[E. K.]

2. **EXOSTEMA** L. C. Rich. Shrubs or trees. Leaf-blades leathery. Flowers axillary or in paniculate cymes. Sepals 5, short. Corolla with a slender tube and 5 narrow lobes. Stamens 5: filaments adnate to the base of the corolla-tube, pubescent below: anthers narrowly linear, exserted. Capsule elongate. Seeds winged.

1. **E. caribaeum** (Jacq.) R. & S. Shrub or small tree, the foliage glabrous: leaf-blades oblong to elliptic, 2–6 cm. long: sepals 1–2 mm. long: corolla white or rose-tinged; the tube 3.5–4 cm. long; lobes narrowly linear: capsules elliptic, 10–12 mm. long.—Hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—PRINCE-WOOD.

3. **CASASIA** A. Rich. Unarmed shrubs or trees. Leaf-blades leathery. Flowers in axillary cymes. Sepals 5, broad or narrow. Corolla with a stout tube and 5 relatively broad lobes. Stamens 5: filaments adnate to the lower part of the corolla-tube: anthers elongate, linear-sagittate, included. Berry thick.

1. **C. clusiifolia** (Jacq.) Urban. Shrub or small tree, the bark pale: leaves clustered at the branch-tips; blades cuneate to obovate, 5–15 cm. long: hypanthium turbinate: sepals subulate: corolla white; tube 16–20 mm. long; lobes acuminate, shorter than the tube: berries mainly obovoid, 5–7 cm. long. [*Genipa clusiifolia* (Jacq.) Griseb.]—Sand-dunes and coastal hammocks, U. S. keys, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba.*)—SEVEN-YEAR APPLE.

4. **RANDIA** [Houst.] L. Armed shrubs or trees. Leaves relatively few: blades leathery. Flowers axillary. Sepals 4–5, short. Corolla with a short tube and 4 or 5 very broad lobes. Stamens 4 or 5: filaments adnate to near the top of the corolla-tube: anthers oblong or nearly so, included. Berry globular or elongate.

1. **R. aculeata** L. Shrub 0.3–3 m. tall: leaves 1.5–5 cm. long; blades spatulate to oval, elliptic, or suborbicular: sepals triangular to ovate, about 1 mm.



long: corolla white; tube 5-7 mm. long; lobes oblong to ovate: berries oval to subglobose, 8-10 mm. long, greenish-white.—Hammocks and pinelands, U. S. keys, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

5. **CATESBAEA** L. Armed shrubs. Leaves very numerous: blades leathery. Flowers axillary. Sepals 4, short. Corolla with a long tube and 4 short lobes. Stamens 4: filaments adnate to the base of the corolla-tube: anthers narrow or linear. Berry thick.

561 1. **C. parviflora** Sw. Shrub 1-3 m. tall: leaves 5-15 mm. long; blades spatulate, obovate, or suborbicular, lustrous: sepals triangular to triangular-lanceolate, 1-1.5 mm. long: corolla white; tube campanulate, 3.5-4 mm. long; lobes deltoid, acutish: berries subglobose, 6-18 mm. long, blue or black.—Hammocks, U. keys, L. keys.—(*Bah., Cuba, Ant.*)

56 6. **HAMELIA** Jacq. Unarmed shrubs or trees. Leaf-blades membranous. Flowers in dichotomous cymes. Sepals 5, minute. Corolla with a narrow fluted tube and 5 very short lobes. Stamens 5: filaments adnate to the base of the corolla-tube: anthers linear, included. Berry thick.

562 1. **H. patens** Jacq. Shrub 2-3 m. tall: leaf-blades elliptic, oblong, or elliptic-ovate, 8-15 cm. long: hypanthium turbinate: corolla crimson, 1.5-2.3 cm. long; lobes 2-3 mm. long: berries oval or ovoid, 5-7 mm. long, black. [*H. erecta* Jacq.?]—Hammocks, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

363 7. **GUETTARDA** L. Shrubs or trees. Leaf-blades thin or thickish. Flowers in axillary peduncled cymes. Sepals 2-4 or more, short, or obsolete. Corolla with a long tube and 4 or more, shorter lobes. Stamens 4-9: filaments adnate to the top of the corolla-tube: anthers narrow, but short. Drupe globular.

Corolla 6-8 mm. long: leaf-blades strigillose or glabrate, not rugose. 1. *G. elliptica*.  
Corolla 20-25 mm. long: leaf-blades scabro-pubescent, rugose. 2. *G. scabra*.

563 1. **G. elliptica** Sw. Shrub or small tree: leaf-blades thin, mainly oblong, oval, or obovate, 2-4 cm. long: corolla-lobes mostly 4: style glabrous: drupes 8-15 mm. in diameter.—Hammocks and pinelands, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—VELVET-SEED.

564 2. **G. scabra** Vent. Shrub or small tree: leaf-blades thick, mainly oblong, oval, or oblong-ovate, 4.5-8 cm. long, or rarely smaller: corolla-lobes mostly 6 or 7: style pubescent: drupes about 6 mm. in diameter.—Hammocks and palmlands, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—ROUGH VELVET-SEED.

565 8. **ERITHALIS** P. Br. Shrubs. Leaf-blades leathery. Flowers in terminal cymes. Sepals 5-10, short, obsolete. Corolla with a short tube and 5-10 narrow lobes. Stamens 5-10: filaments adnate to the base of the corolla-tube: anthers oblong to linear. Drupe berry-like.

566 1. **E. fruticosa** L. Shrub with glabrous foliage: leaf-blades oval to oblong-ovate, 2.5-5 cm. long, lustrous: sepals minute: corolla white; lobes oblong, 3-5 mm. long: berries subglobose, 3-4 mm. thick, dark-purple.—Coastal hammocks and sand-dunes, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

9. **CHIOCCOA** P. Br. Shrubs or vines. Leaf-blades leathery. Flowers in axillary raceme-like cymes. Sepals 5, short. Corolla with a relatively short tube and 5 shorter lobes. Stamens 5: filaments long, essentially free from the corolla-tube and united around the base of the style: anthers linear. Drupe globular. SNOWBERRY.

Corolla-lobes about 3 mm. long: anthers about 3 mm. long: seeds 4-5 mm. long.

Corolla-lobes about 2 mm. long: anthers about 2 mm. long: seeds 2-2.5 mm. long.

1. *C. alba*.

2. *C. pinetorum*.

1. *C. alba* (L.) A. Hitchc. Large, mostly diffuse or reclining, plants: leaf-blades elliptic, oval, or ovate, 3-7 cm. long: corolla white, often becoming yellow; tube 7-8 mm. long: drupes white, 5.5-6.5 mm. in diameter.—Hammocks, U. S. keys, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

2. *C. pinetorum* Britton. Small, trailing plants: leaf-blades elliptic to oblong or sometimes oval, broadest below the middle, 1-3 cm. long: corolla permanently white; tube 3.5-4 mm. long: drupes white, 4-4.5 mm. in diameter.—Pinelands and open hammocks, U. keys, L. keys.—[E. K.]—(*Bah., Cuba*.)

10. **STRUMPFIA** Jacq. Shrubs. Leaf-blades rigid-leathery. Flowers in axillary raceme-like panicles. Sepals 5, short. Corolla rotate, with a very short tube and 5 longer lobes. Stamens 5: filaments very short, scarcely adnate to the base of the corolla-tube, united: anthers adnate to their broad connectives. Drupe thick.

1. *S. maritima* Jacq. Much-branched pubescent shrub, the branches short-jointed: leaf-blades linear to linear-elliptic, 1-2.5 cm. long, revolute: sepals triangular to ovate-triangular, becoming about 1 mm. long, acute: corolla white, pubescent; lobes lanceolate to oblong, 3-4 mm. long: drupes 4-6 mm. long, white or red.—Hammocks and sand-dunes, U. keys, L. keys.—(*Bah., Cuba, Ant.*)

11. **PSYCHOTRIA** L. Shrubs or trees. Leaf-blades thinnish. Flowers in terminal or axillary cymes. Sepals 4-6, short and broad. Corolla with a relatively short tube and 4-6 usually somewhat shorter lobes. Stamens 4-6: filaments adnate to near the top of the corolla-tube: anthers oblong to oval. Drupe thick, often berry-like.—WILD-COFFEE.

Cyme sessile: sepals low and rounded.  
Cyme peduncled: sepals deltoid.

1. *P. undata*.

2. *P. bahamensis*.

1. *P. undata* Jacq. Shrub or small tree, the branches glabrous: leaf-blades oval, elliptic, or elliptic-lanceolate, 6-15 cm. long: corolla white; tube 2.5-3 mm. long: anthers oval: drupes 4-4.5 mm. long, red.—Hammocks, U. S. keys, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—WILD-COFFEE.

2. *P. bahamensis* Millsp. Shrub 3 m. tall or less, or a small tree, with glabrous twigs: leaf-blades lanceolate, elliptic or oblanceolate, 3-12 cm. long, acuminate, paler beneath than above, short-petioled: cymes lax, peduncled: sepals deltoid: corolla white, 3-4 mm. long: lobes oblong to oblong-lanceolate, shorter than the tube: fruits oval or globular, 4-5 mm. long, bright-orange.—Hammocks, Key Largo.—(*Ber., Bah., Cuba*.)—BAHAMAN WILD-COFFEE.

12. **MORINDA** [Vaill.] L. Shrubs or trees. Leaf-blades rather thin. Flowers in capitate cymes, the hypanthia coalescent. Sepals usually 5, minute or obsolete. Corolla with a relatively short tube and usually 5 somewhat shorter lobes. Stamens usually 5: filaments adnate to near the top of the corolla-tube: anthers linear. Drupes united into a fleshy syncarp.

1. *M. Roioi* L. Shrub or vine: leaf-blades oblong to cuneate, 5-10 cm. long: corolla white or reddish; lobes oblong or oblong-lanceolate, 2.5-3.5 mm. long: syncarp 2-3.5 cm. long, yellow.—Pinelands and hammocks, U. S. keys, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

13. **ERNODEA** Sw. Diffuse or vine-like shrubs. Leaf-blades leathery. Flowers axillary. Sepals 4-6, narrow. Corolla with a long tube and 4-6 relatively long lobes. Stamens 4-6: filaments adnate to the top of the corolla-tube: anthers narrow. Drupe thin-fleshy.

Sepals about  $\frac{1}{2}$  as long as the corolla-tube: anthers narrowly linear. 1. *E. littoralis*.  
 Sepals about  $\frac{1}{2}$  as long as the corolla-tube: anthers narrowly oblong. 2. *E. angusta*.

57 1. *E. littoralis* Sw. Stem and branches prostrate: leaves fleshy; blades mainly elliptic, sometimes narrowly so, 2-3.5 cm. long: corolla white; tube mostly over 10 mm. long: anthers over 2 mm. long: drupes mainly globular.—Coastal sand-dunes and rocky shores, U. S. keys, U. keys, L. keys, L. S. keys.—(*Bah., Cuba, Ant.*)

57 2. *E. angusta* Small. Stem and branches more slender than those of *E. littoralis*: leaves firm; blades linear, 2-4 cm. long: corolla usually reddish; tube mostly less than 10 mm. long: anthers over 1.5 mm. long: drupes mainly oval.—Pinelands, L. keys.—[E. K.]—(*Bah.*)

14. **BORRERIA** Meyer. Herbs or woody plants. Leaf-blades herbaceous. Flowers in compact axillary cymes. Sepals usually 2, sometimes 4, unequal. Corolla with a short tube and 4 broad lobes. Stamens 4: filaments adnate to the top of the corolla-tube: anthers globular to oval. Capsule with each carpel open along the inner face.

Calyx-lobes triangular or lanceolate: corolla much longer than the calyx: filaments longer than the anthers. 1. *B. podocephala*.

Calyx-lobes subulate, corolla about as long as the calyx: filaments very short. 2. *B. parviflora*.

57 1. *B. podocephala* DC. Perennial, 0.5-3 dm. tall: leaf-blades linear-spatulate to linear, often narrowly so, 1-3 cm. long, veinless: corolla-lobes over 1 mm. long.—Pinelands, L. keys.—[E. K.]—(*Cuba, Ant.*)

57 2. *B. parviflora* Meyer. Annual, 1-9 dm. tall: leaf-blades oblong to elliptic, linear-oblong, or linear, 1-2.5 cm. long, veiny: corolla-lobes over 1 mm. long.—Pinelands, L. keys.—[E. K.]—(*Cuba, Ant.*)

15. **SPERMACOCE** [Dill.] L. Herbs or woody plants. Leaf-blades herbaceous. Flowers in dense, axillary cymes. Sepals usually 4. Corolla with a short tube and 4 broad lobes. Stamens 4: filaments adnate at least to the lower part of the corolla-tube: anthers oval or globular. Capsule with 1 dehiscent and 1 indehiscent carpel.

Corolla-lobes longer than the tube.

1. *S. tenuior*.

Corolla-lobes shorter than the tube.

2. *S. keyense*.

57 1. *S. tenuior* (L.) Lam. Stems 1-5 dm. tall, often pubescent: leaf-blades oblong, elliptic, or oblong-lanceolate, 2-5 cm. long: corolla-lobes ovate, shorter than the tube: fruits over 2 mm. long, coarsely hispidulous.—Hammocks, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

57 2. *S. keyense* Small. Stems and branches prostrate, 1-4 dm. long, glabrous: leaf-blades oblong, varying to broadest below or above the middle, or oblong-lanceolate, mostly 1-2 cm. long: corolla-lobes ovate, longer than the tube: fruits 1.5-2 mm. long, minutely hispidulous.—Open hammocks and sandy places, U. keys, L. keys.

16. **GALIUM** L. Weak or wide-spreading herbs. Leaves with blades and stipules about equal in size. Flowers in simple or rarely branched cymes, the ultimate flower-stalks bracted. Sepals usually obsolete. Corolla rotate,

mostly 4-lobed. Stamens usually 4. Fruit didymous, the carpels leathery or succulent.

1. *G. bermudense* L. Plants diffuse, the stems 1-6 dm. long: blades of the leaves, and stipules, oval-oblong, 5-25 mm. long, cuspidate, pellucid-punctate and pubescent beneath: flowers 3-5 together: corolla greenish-white; lobes narrowly ovate, about 2 mm. long: fruits about 5 mm. thick, baccate.—Hammocks, L. keys.—[E. K.]—(*Ber.*, *Bah.*)—BEDSTRAW.

### Order ARISTOLOCHIALES.

Herbs, shrubs, or vines. Leaves alternate: blades mostly cordate or hastate. Flowers perfect, often conspicuous. Hypanthium mostly adnate to the ovary. Calyx regular or very irregular. Corolla wanting or rudimentary. Androecium of as many stamens as there are calyx lobes or more. Gynoecium of usually 6 united carpels. Fruit a capsule.

#### FAMILY 1. ASARACEAE. BIRTHWORT FAMILY.

Perennial herbs, shrubs, or vines. Leaves alternate: blades sometimes lobed, generally cordate. Flowers perfect, regular or very irregular. Calyx usually colored, the tube often bent or inflated. Androecium of 6-many stamens. Gynoecium of 4-6 united carpels. Ovary mostly inferior. Fruit capsular.

1. *ARISTOLOCHIA* [Tourn.] L. Caulescent herbs, shrubs, or vines. Leaves with narrow or broad blades. Flowers irregular, often S-shaped, or resembling a dutch-pipe, the calyx often coralloid. Hypanthium often ribbed. Ovary inferior. Styles united into an angled column. Capsules pendulous.

1. *A. pentandra* Jacq. Stems reclining and twining: leaf-blades ovate, 4-10 cm. long: hypanthium minutely pubescent: calyx nearly straight, the limb narrow, nearly erect: capsules globular, 15-20 mm. long, wing-angled.—Coastal hammocks, U. keys.—[E. K.]—(*Bah.*, *Cuba.*)

### Order CAMPANULALES.

Herbs, or rarely shrubs or trees. Leaves mainly alternate: blades simple, entire, or divided. Flowers perfect, monoecious, or dioecious, sometimes irregular. Hypanthium well-developed. Calyx of several distinct or partially united sepals. Corolla of several distinct or partially united petals. Androecium of 1-5 stamens. Anthers distinct or connate. Gynoecium of 1-several united carpels, the ovary wholly or partially inferior. Fruit capsular, baccate, or drupaceous.

Endosperm wanting: flowers monoecious or dioecious: plants mainly vines.

Endosperm present: flowers perfect or mainly so.

Fam. 1. CUCURBITACEAE.  
Fam. 2. BRUNONTACEAE.

#### FAMILY 1. CUCURBITACEAE. GOURD FAMILY.

Vines, usually tendril bearing. Leaves alternate: blades palmately or pedately veined, and commonly lobed. Flowers monoecious or dioecious. Calyx of 4 or 5, or rarely 6, distinct or partially united sepals. Corolla of 4 or 5, or rarely 6, distinct or partially united petals, sometimes adherent to



the calyx. Androecium of 3 stamens (2 anthers 2-celled and 1 anther 1-celled), or rarely of 1, 2, 4 or 5 stamens. Filaments sometimes united. Anthers straight or bent. Gynoecium 1-several-carpellary. Styles united. Fruit a fleshy or partially dry berry.

Anthers straight or merely curved: berry smooth.

1. MELOTHRIA.

Anthers contorted or conduplicate: berry rugose or warty.

2. MOMORDICA.

Calyx with 2 or 3 scales in the bottom: berry warty.

3. CUCUMIS.

Calyx without scales in the bottom: berry rugose.

1. **MELOTHRIA** L. Vines. Leaves with toothed or lobed blades. Flowers mainly monoecious. Hypanthium of the pistillate flowers relatively short. Berry juicy, the rind tender. Seeds flat.

1. **M. crassifolia** Small. Stems nearly glabrous or hispidulous: leaf-blades suborbicular, reniform, or ovate in outline, 3-8 cm. wide, with 3-5 angular shallow-toothed lobes: hypanthium glabrous or pubescent: corolla yellow, 6-8 mm. wide: berries oblong or oval, 10-25 mm. long.—Hammocks, U. keys, L. keys.—[E. K.]—CREEPING-CUCUMBER.

2. **MOMORDICA** L. Annual or perennial vines. Leaves with entire, lobed, or pedately dissected blades. Flowers monoecious or dioecious. Stamini-odia of the pistillate flowers gland-like, or wanting. Style slender. Stigmas

3. Berry warty.

1. **M. Charantia** L. Stems creeping or climbing, often greatly elongate: leaf-blades 4-12 cm. wide, 5-7-lobed, the lobes with acute or obtuse teeth, villous or glabrate: sepals oval or oval-ovate, 3-4.5 mm. long: petals yellow, 1-2 cm. long: berries 4-12 cm. long, golden-yellow: seeds oblong, 12-16 cm. long.—Thickets and waste places, Key West. Nat. of the Tropics.—[E. K.]—(Bah., Cuba, Ant.)—BALSAM-APPLE.

3. **CUCUMIS** L. Annual or perennial vines. Leaves with toothed or prominently lobed blades. Flowers monoecious. Corolla rotate. Stamini-odia of the pistillate flowers obsolete, or wanting. Style short. Stigmas obtuse. Berries rugose or echinate.

1. **C. Melo** L. Stems stout: leaf-blades reniform to suborbicular, 1.5 dm. long or less, merely toothed or shallowly lobed: corolla 3-5 cm. wide: fruit elongate or depressed, rugose.—Pinelands and cultivated grounds, L. keys. Nat. of Asia.—(Ant.)—CANTALOUPE.

## FAMILY 2. BRUNONIACEAE. GOODENIA FAMILY.

Herbaceous or woody plants. Leaves alternate or sometimes opposite: blades entire, toothed, or pinnatifid. Flowers perfect. Calyx of 5 partially united sepals, or rarely obsolete. Corolla of 5 equally or unequally united petals. Androecium of 5 distinct stamens. Gynoecium mostly of 2 united carpels, the ovary mostly inferior. Stigma surrounded with an indusium. Fruit drupaceous, baccate, or capsular.

1. **SCAEVOLA** L. Succulent herbs or shrubs. Leaf-blades mostly entire. Flowers irregular, in cymes. Calyx 5-lobed, or obsolete. Corolla-tube open to the base on one side, the lobes winged. Stigma with a ciliate indusium. Berry with a fleshy exocarp.

1. **S. Plumieri** Vahl. Plants 3-18 dm. tall: leaf-blades obovate to spatulate, 4-6 cm. long: calyx-lobes rounded: corolla white or pinkish, 22-28 mm. long,



woolly within; lobes linear to lanceolate: berries oval to globular, 10-14 mm. long, black.—Coastal sand-dunes and hammocks, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber.*, *Bah.*, *Cuba*, *Ant.*)

### Order CARDUALES.

Herbs, shrubs, or rarely trees. Leaves mainly alternate: blades entire, toothed, or divided. Flowers perfect, monoecious, or dioecious, few or many aggregated on a receptacle and surrounded with an involucre, or the involucre rarely obsolete. Calyx one or two rows of bristles, scales, a mere border or crown, or obsolete, or wanting. Corolla of several more or less united petals, or wanting. Androecium of usually 5 stamens, the anthers converging, or united. Gynoecium mostly of 2 united carpels. Ovary inferior. Styles or stigmas mostly 2. Fruit an achene.

Flowers with tubular corollas, or those of the outer ones prolonged into ligules.

Stamens distinct, the anthers merely converging about the stigma.

Fam. 1. AMBROSIACEAE.

Stamens united by the anthers, thus forming a tube around the stigma, except in *Kuhnia*.

Fam. 2. CARDUAACEAE.

Flowers with each corolla prolonged into a ligule.

Fam. 3. CICHORIACEAE.

### FAMILY 1. AMBROSIACEAE. RAGWEED FAMILY.

Annual or perennial, weedy herbs, the plants often coarse. Leaf-blades entire, toothed, lobed, or divided. Flowers in inconspicuous heads, the bracts of the pistillate heads distinct or sometimes united and accrescent into a bur. Fruit-producing flowers apetalous or with much reduced corollas. Achenes subtended by or enclosed in an involucre. Pappus wanting or obsolete.

Staminate and pistillate flowers in different heads: involucre of the pistillate head bur-like or nut-like.

Bracts of the staminate involucres distinct: pistillate involucres bur-like.

Bracts of the staminate involucres united.

1. XANTHIUM.

Staminate and pistillate flowers in the same heads.

2. AMBROSIA.

3. IVA.

1. **XANTHIUM** L. Coarse, sometimes spiny herbs. Leaf-blades large, toothed or lobed. Mature pistillate involucre copiously and evenly spiny.

1. **X. americanum** Walt. Plants glabrate or finely pubescent, 2-13 dm. tall: leaf-blades ovate or deltoid, 5-30 cm. long, rather coarsely toothed and more or less distinctly lobed: fruits oblong, 15-20 mm. long, thickly beset with slender, more or less hooked spines.—Cultivated grounds and waste places, Key West.—CLOTBUR. BURWEED. COCKLEBUR.

2. **AMBROSIA** [Tourn.] L. Leaf-blades toothed, lobed, or divided. Mature pistillate involucre tuberculate or spiny near the top.—RAGWEED.

Leaf-segments few: stems erect: staminate corollas less than 2 mm. long.

1. *A. elatior*.

Leaf-segments numerous: stem decumbent or prostrate: staminate corollas 2 mm. long or more.

2. *A. hispida*.

1. **A. elatior** L. Annual, mostly 3-6 dm. tall, the stem and branches sparingly pubescent: leaf-blades sparingly pubescent, the ultimate segments lanceolate to linear-lanceolate, acute or acuminate: peduncles slender, mostly shorter than the involucres: staminate involucres sparingly fine-pubescent: achenes 2-2.5 mm. long, the tubercles at or near the top. [*A. artemisiifolia* L.]—Pinelands and coastal sand-dunes, U. S. keys, U. keys, L. keys.—[E. K.]—(*Ber.*, *Bah.*)

586 2. *A. hispida* Pursh. Perennial, the stem and branches decumbent or prostrate, the younger parts hirsute: leaf-blades short-hirsute, the ultimate segments small, short and rounded: peduncles stout, minutely hirsute: staminate involucre finely hirsute: achenes 4-4.5 mm. long.—Coastal sand-dunes, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

3. *IVA* L. Leaf-blades entire or toothed. Mature pistillate involucre not bur-like.

587 1. *I. imbricata* Walt. Stems 3-7 dm. long, smooth and glabrous: leaf-blades linear-subulate to linear, 2-5 cm. long, glabrous: involucre 3-4 mm. high: achenes about 3-3.5 mm. long.—Coastal sand-dunes and rocky shores, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba.*)—MARSH-ELDER.

## FAMILY 2. CARDUACEAE. THISTLE FAMILY.

Herbs or rarely shrubs or trees. Flowers borne in heads, the marginal ones commonly differing from the central ones in having a 1-sided, more or less elongate corolla limb. Pappus usually present and often conspicuous.

Stigmatic lines at the base of the stigma or below the middle.

Stigmas filiform or subulate, hispidulous.

TRIBE I. VERNONIEAE.

Stigma more or less clavate, papillose-puberulent.

TRIBE II. EUPATORIEAE.

Stigmatic lines extending to the tip of the stigma or to the appendages.

Anthers without elongated appendages at the top.

Anther-sacs tailed at the base.

TRIBE IV. INULEAE.

Anther-sacs not tailed at the base.

Receptacle naked.

Bracts of the involucre well imbricated.

Stigmas of the perfect flowers with terminal appendages.

TRIBE III. ASTEREAE.

Stigmas of the perfect flowers with truncate or hairy or papillose tips.

TRIBE VI. HELENIEAE.

Bracts of the involucre little if at all imbricated, except when the broad outer ones overlap the inner.

TRIBE VII. SENECEONEAE.

Receptacle chaffy.

TRIBE V. HELIANTHEAE.

Anthers with elongated, cartilaginous, mostly connate appendages at the top.

TRIBE VIII. CYNAREAE.

### TRIBE I. VERNONIEAE.

Pappus of 2 series: corollas regular: heads neither glomerate nor involucrate.

1. VERNONIA.

### TRIBE II. EUPATORIEAE.

Achenes 3-5-angled, ribless.

Pappus various, never wholly of capillary bristles.

2. AGERATUM.

Pappus wholly of capillary bristles.

Involucre of more than 4 bracts, 5-many-flowered.

3. OSMIA.

Involucre of 4 bracts, or rarely of more, 4-flowered.

4. MIKANIA.

Achenes 8-10-ribbed or 8-10-striate.

5. LACINIARIA.

### TRIBE III. ASTEREAE.

Ray-flowers present, or rarely wanting: plants not dioecious.

Ray-flowers with yellow corollas.

Pappus, at least that of the disk flowers, of different series, the inner of capillary bristles, the outer of scales or of shorter bristles.

6. CHRYSOPSIS.

Pappus wholly of capillary bristles.

7. SOLIDAGO.

Ray-flowers with white or colored (not yellow) corollas.

Bracts of the involucre in 3-many series.

8. ASTER.

Bracts of the involucre in 1 or 2 series.

9. LEPTILON.

Ray-flowers wanting: plants dioecious.

10. BACCHARIS.

Flora of Florida Keys 10.

## TRIBE IV. INULEAE.

Heads clustered: bracts of the involucre scarious, herbaceous.

Bracts of the involucre broad, mainly persistent.

Bracts of the involucre narrow, mainly deciduous.

Heads scattered: bracts of the involucre rigid.

11. *PLUCHEA*.  
12. *PTEROCAULON*.  
13. *SACHSIA*.

## TRIBE V. HELIANTHEAE.

Disk-flowers perfect, but not fruit-producing.

Disk-flowers fruit-producing.

Pappus a mere crown or cap, or of few teeth, awns or bristles.

Achenes, at least those of the disk, not compressed (except in *Phacellusa*): bractlets mostly concave and clasping.

Ray-flowers wanting: bracts of the involucre dry.

Ray-flowers present: bracts of the involucre herbaceous.

Achenes of the disk neither sharp-edged, margined nor winged.

Ray-flowers not fruit-producing.

Ray-flowers fruit-producing.

Achenes of the disk thin-edged, margined or winged.

Achenes markedly flattened parallel to the involucre bracts.

Pappus of 2 fimbriolate awns, scales or teeth, or a mere border or wanting.

Pappus of 2-6 awns or teeth, upwardly or downwardly barbed or hispid.

Achene beakless: ray-flowers with yellow or white ligules, or wanting.

Achene beaked: ray-flowers with purple or rose ligules.

Pappus of numerous scales.

14. *PARTHENIUM*.

15. *MELANTHERA*.

16. *BORRICHIA*.  
17. *HELIANTHUS*.

18. *XIMENESIA*.

19. *COREOPSIS*.

20. *BIDENS*.

21. *COSMOS*.  
22. *TRIDAX*.

## TRIBE VI. HELENIEAE.

Plant-tissues without oil-glands.

Plant-tissues, especially the leaves and bracts of the involucre, with oil-glands.

23. *FLAVERIA*.

24. *PECTIS*.

## TRIBE VII. SENECEONEAE.

Disk-flowers perfect: marginal flowers pistillate.

Disk-flowers and marginal flowers perfect.

25. *ERECHTITES*.

26. *EMILIA*.

## TRIBE VIII. CYNAREAE.

Plants with spine-margined leaves.

27. *CIRSIUM*.

1. **VERNONIA** L. Caulescent herbs. Leaves alternate: blades mostly toothed. Heads not involucre. Corolla-lobes lanceolate. Anther-appendages lanceolate to oblong. Pappus double, the outer series of scales or stout bristles, the inner of numerous capillary bristles.—IRONWEED.

Achenes ribbed: corollas 8-12 mm. long.

Blades of the upper cauline leaves narrowly linear, entire: inner involucre bracts 5-6 mm. long. 1. *V. Blodgettii*.

Blades of the upper cauline leaves not narrowly linear, toothed: inner involucre bracts 3-4 mm. long. 2. *V. gigantea*.

Achenes terete or nearly so: corollas about 2 mm. long. 3. *V. cinerea*.

1. **V. Blodgettii** Small. Stems 2-8 dm. tall: leaf-blades oblong to linear, 2-4.5 cm. long, entire: involucre 6-7 mm. high; inner bracts oblong or ovate-oblong, acute or acuminate: corolla purple.—Pinelands, L. keys.—[E. K.]

2. **V. gigantea** (Walt.) Britton. Stem 9-25 dm. tall: leaf-blades linear to oblong or elliptic, 8-30 cm. long, sharply serrate: involucre 4-5 mm. high; inner bracts narrowly oblong or linear-oblong, obtuse or mucronate.—Ilam-mocks, Key West.

503 3. *V. cinerea* (L.) Less. Stem cinereous-pubescent, corymbose above, 1 m. tall or less: leaf-blades ovate to oblong-ovate, mostly 2-8 cm. long shallowly toothed, paler beneath than above: peduncles slender: involucre 4-5 mm. high; bracts subulate to linear, acuminate: corollas about 4 mm. long: achenes about 1 mm. long, terete or nearly so: pappus white.—Hammocks and cultivated grounds, U. keys. Nat. of Asia.—(*Bah., Cuba, Ant.*)

2. *AGERATUM* L. Perennial rigid herbs or shrubby plants. Leaves opposite, or alternate above: blades usually toothed. Heads usually corymbose. Involucres campanulate. Corolla-lobes erect, deltoid. Anther-appendages ovate. Achenes 5-angled, short. Pappus of several short or long scales.

597 1. *A. littorale* A. Gray. Stems 3-7 dm. tall, glabrous: leaf-blades ovate, 1-5 cm. long, crenate-serrate, succulent: bracts of the involucre ciliolate, the inner becoming 3.5 mm. long: corollas blue, glabrous: achenes 2 mm. long, glabrous.—Hammocks and sandy shores, L. keys.

353 3. *OSMIA* Sch. Bip. Perennial herbs or shrubby plants. Leaves opposite: blades broadest below the middle. Heads borne in corymbs. Involucre ovoid or thick-cylindric. Corolla-lobes ovate or rounded. Anther-appendages triangular. Achenes angled. Pappus of capillary bristles.

Bracts of the involucre 5-7-ribbed: receptacle convex.

1. *O. frustrata*.

Bracts of the involucre 3-ribbed: receptacle flat.

2. *O. odorata*.

592 1. *O. frustrata* (B. L. Robinson) Small. Stems 5-10 dm. tall, minutely pubescent: leaf-blades ovate-lanceolate to deltoid-ovate, 2-3 cm. long, rather obtuse: involucre 6-8 mm. long: corollas about 4 mm. long. [*Eupatorium heteroclinum* Chapm. Not Griseb. *Eupatorium frustratum* B. L. Robinson.]—Hammocks, U. keys, L. keys.

592 2. *O. odorata* (L.) Sch. Bip. Stems 6-18 dm. tall, pubescent: leaf-blades ovate to lanceolate, 4-10 cm. long, acuminate: involucre 8-10 mm. long: corollas about 5 mm. long.—[*O. conyzoides* (Vahl.) Sch. Bip.]—Hammocks, U. keys.—(*Bah., Cuba, Ant.*)

4. *MIKANIA* Willd. Vines. Leaves opposite, herbaceous: blades of a hastate or deltoid type, mostly toothed. Heads borne in corymbs. Involucre cylindric. Corollas with a campanulate throat: lobes lanceolate to triangular-ovate. Androecium exserted: anther-appendages ovate. Achene angled. Pappus of many capillary bristles. [*Willugbaeya* Neck.]—CLIMBING HEMP-WEED.

Bracts of the involucre acute: corollas about 3 mm. long: lobes ovate.

1. *M. batatifolia*.

Bracts of the involucre obtuse: corollas about 6 mm. long; lobes linear-lanceolate.

2. *M. cordifolia*.

594 1. *M. batatifolia* DC. Plants glabrous: leaf-blades deltoid to hastate-ovate, 1-3 cm. long, entire or repand: heads in small irregular clusters: bracts of the involucre 3-4 mm. long: corollas about 3 mm. long. [*Willugbaeya heterophylla* Small.]—Hammocks and low pinelands, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

505 2. *M. cordifolia* (L.) Willd. Densely pubescent. Stems striate: leaf-blades ovate to hastate, 6-15 cm. long, coarsely toothed, or lobed, cordate at the base: corymbs rounded or rather flat-topped: heads numerous: involucre narrow, but rather stout; bracts oblong to linear-oblong, 7-8 mm. long, obtuse: corollas about 6 mm. long.—Hammocks, U. keys.—[E. K.]—(*Cuba, Ant.*)

5. **LACINIARIA** Hill. Typically simple-stemmed herbs with thick root-stocks. Leaves alternate, often numerous: blades narrow, entire. Heads borne in spikes, racemes, panicles, or rarely in cymes. Involucre ovoid to cylindric or turbinate. Corolla-throat narrow-funnelform, much longer than the slightly narrower tube: lobes lanceolate. Anther-appendages entire or notched. Achene short, ribbed. Pappus of many barbelate or plumose bristles.

1. **L. laevigata** (Nutt.) Small. Stems 6-14 dm. tall, glabrous or nearly so: blades of the lower leaves narrowly linear: inner bracts of the involucre 8-9 mm. long: corollas 8-9 mm. long: filaments pubescent, fully  $\frac{1}{2}$  as long as the anthers.—Pinelands, L. keys.—[E. K.]—BUTTON-SNAKE-ROOT. BLAZING-STAR.

6. **CHRYSOPSIS** Nutt. Silky or woolly herbs. Leaves alternate: blades narrow or broad, mostly entire. Heads solitary, or in a terminal corymb. Involucres ovoid to turbinate, the bracts narrow. Ray-flowers with conspicuous ligules. Disk-corollas with a narrow-funnelform throat. Anther-appendages lanceolate. Stigmas subulate. Achenes flattened. Pappus of numerous bristles.

1. **C. Tracyi** Small. Stems 3-5 dm. tall: blades of the cauline leaves narrowly linear, the lower ones greatly elongate: inner bracts of the involucre 7-9 mm. long, long-ciliate: ligules 9-11 mm. long.—Pinelands, L. keys.—[E. K.]—GOLDEN-ASTER.

7. **SOLIDAGO** L. Glabrous or pubescent herbs. Leaves alternate: blades various, mostly toothed. Heads relatively small, paniculate. Involucres turbinate or cylindric, few-several-flowered: bracts in several series, the inner successively longer. Ray-flowers few: corollas with a slender tube and a yellow, or rarely white, ligule. Disk-corollas with a funnelform or campanulate throat and a tube nearly or quite as long: lobes lanceolate. Anthers nearly or quite as long as the filaments. Stigmas mostly lanceolate. Pappus of 1 or 2 series of rough capillary bristles.

1. **S. Chrysopsis** Small. Stems about 3 dm. tall, glabrous: blades of the cauline leaves linear and entire below, narrowly linear above, all glabrous: inner bracts of the involucre linear-lanceolate, 4.5-5 mm. long, acute.—Pinelands, L. keys.—[E. K.]—GOLDEN-ROD.

8. **ASTER** [Tourn.] L. Perennial herbs, various in habit, or rarely annual, occasionally shrubby or spinescent. Leaves alternate: blades broad or narrow, often enlarged and cordate at the base, entire or toothed. Rootstock usually horizontal and bearing for several years a subterminal tuft of leaves. Lower, middle and upper cauline leaves often gradually transitional to each other in form, often of dissimilar types. Heads with both tubular and radiate flowers, either corymbed, racemed, or paniced and borne on erect, spreading or secund ultimate branchlets. Involucre hemispheric, campanulate, cylindric, or turbinate: bracts imbricate in several series: the outer usually smaller or shorter than the inner, and somewhat herbaceous or otherwise much modified at or toward the apex. Receptacle flat or convex, alveolate and often delicately fimbriate. Ray-flowers pistillate, with white, pink, purple, blue, or violet ligules. Disk-flowers perfect, consisting of a tubular base (the tube), swollen above into a throat and 5 short lobes: disks typically yellow, usually changing to red, brown, or purple. Achenes more or less flattened and nerved or ribbed. Pappus-bristles usually numerous, slender, in one series or rarely in two series, the tips of the inner ones sometimes thickened.—ASTER.



Leaf-blades short, adnate to the stem and branches: ligules violet. 1. *A. adnatus*.

Leaf-blades long, not adnate: ligules pale, white to pale-lilac.

Leaf-blades toothed: ray-flowers numerous.

Leaf-blades entire: ray-flowers few.

2. *A. inconspicuus*.

3. *A. Bracei*.

1. *A. adnatus* Nutt. Stem and branches erect or ascending, 2-8 dm. tall, hispidulous: upper leaves scale-like, appressed; blades oblong, lanceolate, or ovate, scabrous, sessile and partially adnate to the adjacent internodes: heads scattered: involucre campanulate; bracts scabrous, the inner ones linear: ligules violet, 7-10 mm. long.—Pinelands, L. keys.—[E. K.]—(*Bah.*)

2. *A. inconspicuus* Less. Plants annual, glabrous or obscurely glandular in the inflorescence, mostly 1 m. tall or less, rather copiously branched above: cauline leaves mostly 1-1.5 dm. long; blades elliptic to oblong, varying to broadest above or below the middle, acute, shallowly toothed, those of the branches much narrower: heads much smaller than those of *A. Bracei*: involucre campanulate, 3.5-5 mm. high; bracts linear-lanceolate to narrowly linear: ray-flowers 20-30, more numerous than the disk-flowers; ligules mostly pale lilac, about 2 mm. long.—Sandy places, Key West.—(*Cuba, Ant.*)

3. *A. Bracei* Britton. Plants perennial 2-9 dm. tall: upper leaves more or less spreading; blades narrowly linear to linear-subulate: heads corymbose: involucre campanulate-turbinate; bracts stout, the inner ones not reaching to the top of the disk.—Low hammocks, L. keys.—[E. K.]—(*Bah., Cuba.*)

9. **LEPTILON** Raf. Herbs. Leaves alternate: blades narrow, entire or sparingly toothed. Heads several or numerous, inconspicuously radiate or discoid. Involucre usually campanulate, few-flowered: bracts very narrow, the inner much longer than the outer ones. Ray-flowers few: corollas with a very slender tube and a minute ligule. Disk-corollas with a campanulate or a cylindraceous throat and a long tube: lobes deltoid. Pappus of many brittle capillary bristles, in 1 series.

1. *L. canadense* (L.) Britton. Stems 3-20 dm. tall, paniculate above, glabrate or sparsely hirsute: leaf-blades spatulate to linear or nearly so, ciliate near the base: larger bracts of the involucre 3-3.5 mm. long: disk-corollas 2.5-3 mm. long.—Hammocks and waste grounds, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—HORSE-WEED. BUTTER-WEED.

10. **BACCHARIS** L. Shrubs. Leaves alternate: blades leathery, entire or toothed. Heads dioecious, often clustered, discoid. Involucres ovoid to campanulate, many-flowered: bracts of the staminate involucre smaller than those of the pistillate. Corollas various, those of the staminate with a funnel-form throat and a long tube, the lobes lanceolate: those of the pistillate flowers filiform. Pappus of the staminate flowers shorter than that of the pistillate.—GROUNDSEL-TREE.

Leaf-blades broad, coarsely toothed: inner bracts of the pistillate involucre acute or acuminate.

Leaf-blades linear, entire or nearly so: inner bracts of the pistillate involucre obtuse or acutish.

1. *B. halimifolia*.

2. *B. angustifolia*.

1. *B. halimifolia* L. Plants 9-40 dm. tall, resinous: leaf-blades suborbicular to oblong or linear-elliptic, some of them, at least, coarsely toothed: pistillate involucre about 6 mm. long; inner bracts linear.—Coastal hammocks and sand-dunes, L. keys.—[E. K.]—(*Bah.*)

2. *B. angustifolia* Michx. Plants 5-25 dm. tall, resinous: leaf-blades narrowly linear, 1-8 cm. long, entire or nearly so: pistillate involucre 4-5 mm. long; inner bracts oblong.—Hammocks and sand-dunes, U. S. keys.—[E. K.]—(*Bah.*)

11. **PLUCHEA** Cass. Herbs or shrubs. Leaves alternate: blades usually toothed, often prominently veined. Heads borne in corymb-like or glomerate cymes. Involucres turbinate, campanulate, or hemispheric, rather many-flowered: bracts unequal, the inner much longer and much narrower than the outer. Pistillate flowers marginal: corollas filiform. Perfect flowers central: corollas with a funnelform or campanulate throat: lobes triangular to lanceolate. Pappus a single series of capillary bristles.—MARSH-FLEABANE.

Leaf-blades toothed: stems herbaceous.

Leaf-blades sessile and clasping: plants perennial.

Leaf-blades neither sessile nor clasping: plants annual.

Leaf-blades entire: stems woody.

1. *P. foetida*.

2. *P. purpurascens*.

3. *P. odorata*.

1. *P. foetida* (L.) B.S.P. Plants 3–10 dm. tall: leaf-blades oblong to ovate-oblong, 3–8 cm. long: inner bracts of the involucre 4–5 mm. long: staminate corollas 3.5–4 mm. long.—Lime-sinks, L. keys.—[E. K.]—(*Bah., Cuba.*)

2. *P. purpurascens* (Sw.) DC. Plants 3–14 dm. tall: leaf-blades ovate-lanceolate to elliptic or oblong, 4–10 cm. long: outer bracts of the involucre ovate, acute; intermediate bracts abruptly pointed.—Hammocks, U. keys, L. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

3. *P. odorata* Cass. Plants mostly 1 m. tall or less: leaf-blades oblong or nearly so, 8–15 cm. long: inner bracts of the involucre 3.5–4 mm. long, obtuse.—Hammocks and waste grounds, Key West. Nat. of Trop. Am.—(*Ber., Bah., Cuba, Ant.*)

12. **PTEROCAULON** Ell. Tomentose or woolly stout herbs. Leaves alternate: blades entire or shallowly toothed, decurrent. Heads borne in contiguous or separated glomerate cymes. Involucres rather narrow, densely flowered: bracts unequal, the inner slightly narrower than the outer. Pistillate flowers marginal: corollas filiform. Perfect flowers central: corollas with a funnelform throat and a long tube; lobes linear or lanceolate. Anthers shorter than the filaments. Pappus a single series of capillary bristles.

1. *P. undulatum* (Walt.) Ell. Plants 2–7 dm. tall: leaf-blades oblong to lanceolate, 4–12 cm. long, undulate: involucre 3.5–4 mm. high: lobes of the staminate corollas linear.—Pinelands, L. keys.—[E. K.]—BLACK-ROOT.

13. **SACHSIA** Griseb. Inconspicuously pubescent, slender herbs. Leaves alternate, mostly basal: blades toothed. Heads scattered in open corymbs. Involucres campanulate: bracts very unequal, the inner much longer and somewhat narrower than the outer. Pistillate flowers marginal: corollas filiform. Perfect flowers central: corollas narrowly tubular-funnelform: lobes ovate. Pappus a single series of very slender bristles.

1. *S. bahamensis* Urban. Plants 1–6 dm. tall: blades of the basal leaves firm, spatulate, 3–7 cm. long, those of the stem-leaves much smaller: involucre peduncled; bracts various, the outer membranous, the inner chaffy, 5–6 mm. long, very narrowly linear: achenes 2.5 mm. long.—Pinelands, L. keys.—[E. K.]—(*Bah.*)

14. **PARTHENIUM** L. Coarse herbs, or shrubs. Leaves alternate: blades toothed, pinnatifid, or dissected. Heads inconspicuously radiate. Involucre depressed to globular: bracts appressed, broad. Ray-flowers usually 5: ligules minute, white or whitish. Lobes of the disk-corollas ovate, ciliate. Anthers longer than the filaments. Achenes flattened. Pappus of 2 or 3 scales or awns.

1. **P. Hysterophorus** L. Plants annual, 3-7 dm. tall: leaf-blades oblong to ovate in outline: involucre saucer-like, 4-5 mm. broad: disk-corollas 1-1.5 mm. long: achenes 1-1.5 mm. long.—Pinelands and waste places. Key West. Nat. of Trop. Am.—[E. K.]—(*Ber.*, *Bah.*, *Cuba*, *Ant.*)

395 15. **MELANTHERA** Rohr. Perennial herbs. Leaves opposite: blades entire, toothed, or hastate-lobed. Heads discoid. Involucre hemispheric or depressed: bracts often broad, in 2 or 3 series. Throat of the corolla much longer than the tube. Filaments generally as long as the black-tipped anthers or nearly so. Stigmas stout or flattened.

Bractlets of the receptacle long-acuminate, like the bracts of the involucre, coarsely pubescent.

1. *M. parvifolia*.

Bractlets of the receptacle acute or short-acuminate, like the bracts of the involucre, finely puberulent.

2. *M. brevifolia*.

1. **M. parvifolia** Small. Stems 3-8 dm. tall, very rough-hispidulous, slender, sparingly branched: leaf-blades prominently hastate, 2-5 cm. long, or longer, the lateral lobes prominent, coarsely toothed or entire, the middle lobe elongate, contracted between the lateral lobes and the dilated apex, usually coarsely toothed above, the petioles rather short: heads few, usually very long-peduncled: larger bracts of the involucre 5-7 mm. long.—Pinelands and coastal sand-dunes, U. S. keys, U. keys, L. keys.—[E. K.]

2. **M. brevifolia** O. E. Schulz. Stems 8-24 dm. tall, somewhat rough-pubescent, often stout, considerably branched: leaf-blades ovate to deltoid or ovate-hastate or deltoid-hastate, 8-15 cm. long, obtuse or acute, usually crenate, the petioles rather long: heads several or numerous, mostly rather short-peduncled: larger bracts of the involucre 3.5-5 cm. long.—Hammocks and coastal sand-dunes, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah.*, *Cuba*.)

396 16. **BORRICHIA** Adans. Fleshy maritime herbs or shrubs. Leaves opposite: blades thick, entire, or toothed. Heads erect, on stiff peduncles. Involucre hemispheric or flattish: bracts fleshy or leathery. Ray-flowers few. Disk-corollas with a cylindric-funnelform throat and a very short tube: lobes eciliate. Free portions of the filaments much longer than the corolla-tube. Pappus crown-like.—SEA OX-EYE.

Outer bracts of the involucre spreading or reflexed at maturity: bractlets of the receptacle spine-tipped.

1. *B. frutescens*.

Outer bracts of the involucre appressed at maturity: bractlets of the receptacle obtuse or barely mucronate.

2. *B. arborescens*.

63 1. **B. frutescens** (L.) DC. Plants 2-7 dm. tall: leaf-blades linear-spatulate to obovate, 2-6 cm. long: outer bracts of the involucre acute, the inner ones subulate-tipped.—Shores and sand-dunes, U. S. keys, U. keys, L. keys.—[E. K.]—(*Ber.*)

62 2. **B. arborescens** (L.) DC. Plants 2-12 dm. tall: leaf-blades oblanceolate or spatulate-ob lanceolate, 3-6 cm. long: outer bracts of the involucre acute, the inner ones rounded at the apex.—Shores and sand-dunes, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber.*, *Bah.*, *Cuba*, *Ant.*)

397 17. **HELIANTHUS** L. Erect or creeping herbs. Leaves alternate or opposite: blades entire or toothed. Heads solitary or clustered. Involucre campanulate, cylindric, or depressed: bracts various, often narrow, sometimes elongate. Ray-flowers few or many, or rarely wanting. Disk-corollas with a cylindric throat and a very short tube: lobes eciliate. Free portions of the filaments much longer than the corolla-tube. Pappus of 2 awns or scales which are sometimes accompanied by smaller ones.

1. *H. debilis* Nutt. Stems 3-9 dm. long, scabrous: leaf-blades deltoid or somewhat hastate to ovate-lanceolate, 4-8 cm. long, repand or shallowly toothed: bracts of the involucre lanceolate or linear-lanceolate, 8-10 mm. long: ligules of the ray 10-15 mm. long: disk 15-20 mm. wide.—Pinelands and sand-dunes, U. S. keys, U. keys, L. keys.—[E. K.]—SUNFLOWER.

18. *XIMENESIA* Cav. Annual caulescent herbs. Leaves alternate or sometimes opposite: blades toothed or somewhat laciniate. Heads peduncled, often showy. Involucres flat, or flattish. Bracts rather narrow and elongate. Ray-flowers numerous: corollas with a slender tube and yellow ligules. Disk-corollas with a narrowly funnelform throat and a short tube: lobes triangular or lanceolate-triangular. Filaments nearly as long as the anthers. Pappus of short awns.

1. *X. encelioides* Cav. Plants 3-7 dm. tall, pale-pubescent: leaf-blades deltoid or lanceolate, 5-10 cm. long, serrate or incised, the broader petiole-bases appendaged at the base: larger bracts of the involucre linear to linear-lanceolate, 15-20 mm. long: ligules cuneate, 1-2 cm. long: achenes 6-7 mm. long, broadly winged.—Hammocks and waste places, Key West. Nat. of S. W. N. Am.—(*Bah., Cuba.*)

19. *COREOPSIS* L. Erect or diffuse herbs. Leaves various. Heads conspicuously radiate. Involucre campanulate to hemispheric: bracts distinct or nearly so, the outer ones narrow. Ray-flowers several: corollas with yellow, particolored, or pink ligules. Disk-corollas with a funnelform throat and a stout tube. Achenes with entire or pinnate wings, or wingless.—TICKSEED.

1. *C. Leavenworthii* T. & G. Plants 5-15 cm. tall, glabrous: blades of the lower leaves mostly with 2 or more narrow lobes (or broad in *C. Leavenworthii Garberi*), those of the upper leaves mostly entire and narrow: outer involucre bracts subulate-lanceolate, 1-2 mm. long: achenes roundish oval, 2.5-3 mm. long, the wing as broad as the body.—Pinelands, L. keys.—[E. K.]—COREOPSIS.

20. *BIDENS* L. Erect herbs. Leaves opposite, or the upper sometimes alternate: blades entire, toothed, or divided. Heads erect or nodding. Involucre double, the outer bracts foliaceous, the inner appressed. Ray-flowers few and with white or yellow ligules, or wanting. Disk-corollas with a short tube and a longer throat: lobes mostly deltoid. Achenes flat, terete or 4-angled. Pappus of 2-4 rigid, barbed awns.—BEGGAR-TICKS. BUR-MARIGOLD.

Leaf-blades 1-3-pinnately dissected, the divisions incised or lobed: ray-flowers with inconspicuous, entire ligules. 1. *B. bipinnata*.

Leaf-blades 1-pinnate or undivided, the segments regularly serrate: ray-flowers with showy and lobed ligules.

2. *B. leucantha*.

1. *B. bipinnata* L. Plants glabrous or nearly so, the stem 4-angled, branched and rather slender, 3-17 dm. high: primary leaf-segments thin, deltoid, the ultimate one lanceolate, incised or lobed: outer involucre bracts 7-10, linear, shorter than the acute inner ones: ray-flowers few: ligules yellowish-white, about equalling the disk, mostly entire: achenes fusiform, much longer than the involucre, the outer slightly shorter.—Hammocks and cultivated grounds, Key West.

2. *B. leucantha* (L.) Willd. Plants 4-10 dm. tall, not succulent: leaf-segments thick, ovate to ovate-lanceolate, mostly crenate-serrate: heads erect, small: involucre 5-7 mm. long: ray-flowers few: ligules cuneate to suborbicular, white, 1-2 cm. long: achenes slender-fusiform.—Pinelands, hammocks and



waste places, U. S. keys, U. keys, L. keys, L. S. keys. Nat. of Trop. Am.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

**21. COSMOS** Cav. Annual or perennial herbs. Leaves opposite: blades entire, lobed, or 2-3-pinnately dissected. Heads peduncled, showy. Involucres nearly hemispheric: bracts unequal, the outer sometimes smaller than the inner. Ray-flowers few: corollas with pink, purple, or rarely orange-yellow ligules. Disk-corollas with a funnellform throat and a shorter tube. Filaments as long as the anthers or nearly so, sometimes pubescent. Achenes beaked. Pappus of 2-4 barbed awns, or a crown.

**1. C. caudatus** H.B.K. Stems 7-14 dm. tall: leaf-blades 2-pinnately parted, the segments lanceolate or linear: involucrel bracts linear or nearly so: ray-flowers 7-12; ligules rose-colored, 1-2 cm. long: achenes fusiform, about 2 cm. long, the beak nearly or quite as long as the body.—Waste places and cultivated grounds, Key West. Nat. of Trop. Am.—(*Cuba, Ant.*)—COSMOS.

**22. TRIDAX** L. Decumbent herbs. Leaves opposite: blades incised-toothed or pinnately dissected. Heads radiate. Involucre ovoid to campanulate: bracts various, the inner broader than the outer. Ray-flowers few: corollas with a slender glabrous tube and a broad yellow or pale ligule. Disk-corollas with a narrowly funnellform throat and a short tube. Anthers linear. Achenes much shorter than the corollas. Pappus of numerous plumose-ciliate scales.

**1. T. procumbens** L. Plants branched at the base, the branches hirsute: leaf-blades ovate to ovate-lanceolate, 2-5 cm. long, incised or incised-lobed: involucre 6-7 mm. high; bracts hispidulous, the outer lanceolate, the inner broad and abruptly pointed: ligules as broad as long: achenes of the disk about 2 mm. long.—Pinelands, hammocks, and cultivated grounds, L. keys. Nat. of Trop. Am.—[E. K.]—(*Bah., Cuba, Ant.*)

**23. FLAVERIA** Juss. Low branched or diffuse herbs or partially woody plants. Leaves opposite: blades entire or toothed. Heads small, radiate or discoid, usually clustered. Involucres narrow, 1-several-flowered: bracts few, often 2-5, equal or nearly so. Receptacle naked. Ray-flowers usually solitary, pistillate, fruit-producing, the ligules yellow, or wanting. Disk-flowers 1-15, perfect, fruit-producing: corollas yellow or yellowish, with a short throat and a longer tube: lobes deltoid or triangular. Filaments mostly shorter than the anthers. Achenes narrow, 8-10-ribbed. Pappus wanting.

**1. F. linearis** Lag. Stem 2-9 dm. long, the branches often decumbent, corymbose above: leaf-blades narrowly linear to narrowly linear-lanceolate, 3-10 cm. long, entire: heads numerous: involucre about 4 mm. high; bracts mostly 5, oblong to lanceolate: ligules 2-3.5 mm. long: achenes about 1.5 mm. long.—Low pinelands and hammocks, and sandy shores, U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

**24. PECTIS** L. Slender or wiry glandular-dotted herbs. Leaves opposite: blades narrow, usually ciliate near the base. Heads cymose. Involucre narrow, few-several-flowered: bracts distinct, gland-bearing. Ray-flowers few: corollas with yellow ligules. Styles pubescent. Stigmas of the disk-flowers very short.

**1. P. leptcephala** (Cass.) Urban. Stems or branches 8-40 cm. long, nearly glabrous: leaf-blades narrowly linear, 1-3 cm. long: involucre 1-1.5 mm. thick:



ligules linear to linear-oblong: disk-corollas 2 mm. long.—Pinelands and hammocks, L. keys, L. S. keys.—[E. K.]—(*Bah., Cuba, Ant.*)

25. **ERECHTITES** Raf. Annual herbs. Leaves alternate: blades toothed or pinnatifid. Heads corymbose or paniculate. Involucres narrow or somewhat swollen at the base: bracts narrow, flat. Disk-corollas with triangular-lanceolate or deltoid lobes shorter than the narrow throat. Filaments longer than the anthers. Achenes ribbed. Pappus of many white bristles.

1. **E. hieracifolia** (L.) Raf. Plants 2–20 dm. tall, watery: leaf-blades spatulate-oblong to lanceolate, 5–20 cm. long, coarsely toothed, incised, or pinnatifid: involucres 12–15 mm. long: bracts narrowly linear: corollas 8–9 mm. long: achenes about 1.5 mm. long. Waste and cultivated grounds, U. keys, L. keys.—[E. K.]—(*Bah., Cuba, Ant.*)—FIREWEED.

26. **EMILIA** Cass. Annual or perennial herbs. Leaves alternate, but often mostly basal: blades entire, toothed, or lyrate-pinnatifid. Heads solitary or in lax corymbs. Involucres swollen at the base: bracts in one series and without accessory ones at the base. Ray-flowers wanting. Disk-corolla golden, purple, or red, with a cylindric throat and a slender tube, the lobes lanceolate. Filaments slender. Achenes 5-ribbed.

1. **E. sonchifolia** (L.) DC. Plants mostly 1–8 dm. tall: leaf-blades rather succulent, those of the lower leaves spatulate, those of the upper leaves lanceolate to linear, auricled at the base, all sinuate-dentate: heads long-peduncled: involucral bracts linear, 10–12 mm. long: corollas 9–11 mm. long: achenes 4 mm. long.—Cultivated and waste grounds, U. keys. Nat. of the tropics.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)

27. **CIRSIIUM** [Tourn.] Hill. Caulescent large herbs. Leaves alternate: blades toothed, lobed, or pinnatifid, usually spiny. Heads solitary or clustered. Involucre with the outer bract at least spine-tipped or spiny-margined. Filaments mostly pubescent. Pappus of elongate capillary bristles in several series.

1. **C. pinetorum** Small. Stems 4–9 dm. tall, thinly pubescent: leaf-segments with the terminal spines directed forward: inner bracts of the involucre 28–33 mm. long: corollas about 30 mm. long: anthers about as long as the filaments. —Pinelands, L. keys.—[E. K.]—(*Bah.*)—THISTLE.

### FAMILY 3. CICHORIACEAE. CHICORY FAMILY.

Annual, biennial, or perennial herbs, or partially woody plants. Leaves alternate: blades entire, toothed, or parted. Flowers perfect, all alike, borne in heads. Corolla ligulate, the 1-sided limb often 5-lobed at the apex. Stigmas unappendaged. Achenes flat or terete.

1. **SONCHUS** [Tourn.] L. Caulescent herbs. Leaf-blades entire, toothed, or pinnatifid, sometimes spiny-margined. Heads erect. Involucre ovoid, or swollen at the base. Achenes flattened. Pappus deciduous.

1. **S. oleraceus** L. Stems 1–18 dm. tall: leaf-blades lyrate-pinnatifid or runcinate, with soft-tipped teeth: achenes 2.5–3 mm. long, scarcely margined, striate and transverse-wrinkled.—Pinelands and waste grounds. Nat. of Eu.—U. S. keys, U. keys, L. keys, L. S. keys.—[E. K.]—(*Ber., Bah., Cuba, Ant.*)—SOW-THISTLE.

LIST OF SPECIES PUBLISHED IN THIS FLORA

- Cyperus litoreus* (Clarke) Britton. *Mariscus litoreus* Clarke.  
*Indigofera keyensis* Small. Type, Lower Metacumbe Key, Florida, Small, 2570, in herb. N. Y. B. G.  
*Xylophylla Epiphyllanthus* (L.) Britton. *Phyllanthus Epiphyllanthus* L.  
*Chamaesyce Serpyllum* Small. Type, Big Pine Key, Florida, Small, 3811, in herb. N. Y. B. G.  
*Chamaesyce scoparia* Small. Type, Big Pine Key, Florida, Small, 3819, in herb. N. Y. B. G.  
*Ananomis bahamensis* (Kiaersk.) Britton. *Eugenia bahamensis* Kiaersk.  
*Agalinus erecta* (Walt.) Pennell. *Anonymos erecta* Walt.  
*Spermacoce keyense* Small. Type, Key West, Florida, Small, 3748, in herb. N. Y. B. G.  
*Osmia frustrata* (B. L. Robinson) Small. *Eupatorium frustratum* B. L. Robinson.

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